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**ORIGINAL COMMUNICATIONS.**

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**THE MEDICO-EDUCATIONAL PROBLEM OF THE DEAF  
CHILD.\***

BY G. HUDSON-MAKUEN, M. D., PHILADELPHIA.

The deaf child presents problems which should be of interest to the physician as well as to the teacher. It is the function of the physician to prevent deafness, and failing in this to cure or ameliorate it, and it is the function of the teacher to prevent the natural result of deafness, which is dumbness or mutism. When we consider that speech is the one faculty of all others which distinguishes man from the brute creation, this work must assume an added importance.

The medico-educational problem of the deaf child would be in all respects identical with that of the normal child if the deaf child were not dumb. To teach the deaf child to speak, therefore, and to read speech, notwithstanding his deafness, is the function of the teacher, and the function of the physician obviously is to aid the teacher by diminishing as much as possible the degree of deafness and by opening up, also, to the greatest possible extent, the other avenues to the central mechanisms of speech, which are chiefly through the sense of vision and the sense of touch. It is important always to keep in mind the fact that in the beginning the deaf child is unlike other children only in respect to his deafness or hardness of hearing and in respect to the natural result of this condition, namely, the dumbness or mutism. In other words, if the deaf child can be taught to speak and to understand speech, his deaf-

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ness becomes a comparatively negligible factor or incident in his life.

If the defective speech, therefore, or the mutism is the chief characteristic of deafness and the chief obstacle to the education of the deaf, and if the hardness of hearing, or the deafness, is the cause of the defective speech and of the mutism, obviously, the first and most important problem confronting us is one of a medical nature, and it is, of course, to remove the cause by preventing deafness in very young children, or failing in this to improve the hearing-power for speech-sounds, and even to restore it, if possible, in those cases in which it seems to be altogether lost.

Authorities are agreed upon the fact that there are a considerable number of children born into the world with no potentiality for hearing whatsoever. These are the so-called congenitally deaf children, and unfortunately, so absolute is the arrest of development in some of them that nothing short of a miracle can give them any hearing-power; but the picture has a brighter side, for not all mute children are absolutely deaf. Many of them have varying degrees of more or less useful hearing-power, which may be considerably increased as has been shown by the experiments of Bezold with the tuning-forks, and of Urbantschitsch, myself, and others with the use of the speaking-voice in varying degrees of loudness in close proximity to the defective ear. Hearing is an acquired faculty, deafness being the natural condition of the new-born infant. The auditory nerve assumes its natural function only after it has become medullated, and all hearing-power, therefore, is largely a matter of education. The hearing-power for speech depends not alone upon an intactness of the peripheral auditory organs, but it depends also to a great extent upon the condition of the auditory centers in the brain and of the entire so-called cerebral zone of language.

To have a highly developed musical ear, one must have a musical education, and so to have a really good ear for speech, one must have learned how to speak. While hearing goes before speech in point of development, yet its highest development takes place contemporaneously with speech-development, the ear standing guard over speech, and thus improving itself by exercise. Moreover, a child may apparently have normal hearing-power for sounds generally and yet lack any hearing-power whatsoever for speech. This fact, as is well known, is due to a lack of development of the auditory word-center in the brain, and the affection has been called "word-deafness."

A child having congenital word-deafness, although the hearing for other sounds may be perfect, will be as mute as a congenitally deaf child, and for the same reason, namely, that he cannot hear speech. Absolute and uncomplicated word-deafness is, of course, a somewhat rare affection in children, but absolutely perfectly functioning word-centers are probably quite as rare. In other words, the faculty of hearing words accurately is an acquired one. It is a result of more or less conscious training and effort on the part of the individual, and like any other of the so-called faculties of the brain, it varies greatly with different individuals, because it depends for its fullest development upon a correspondingly full development of the associated faculties such as that of attention, memory, etc.

While we have many so-called deaf-mute children, or children who are unable to develop speech on account of deafness, yet, we probably have a much larger number having various forms of defects of speech on account of some other perversion of hearing, either in the peripheral or central mechanisms.

Speech-defects generally are due to defects of hearing to a far greater extent than is commonly supposed, although the rule works both ways, and defects of speech due to other causes, by giving the ear faulty exercise, develop defects of hearing. It is owing to this fact that the ear of the individual always accepts his own speech as being normal, no matter how far it may depart from this type, and the correction of abnormal speech consists in large part in the correction also of the inaccuracies of hearing.

The fact that all hearing is the result of development after the child's birth should encourage the physician to use and advise every possible means to aid this development. Bezold's tuning-fork method is probably worthy of a more extended trial, and certainly the method of using the voice in loud tones in close proximity to the ear should be practiced in all cases in which the slightest vestige of latent hearing-power may exist. Although a child may be so deficient in hearing-power that he can never, by any possible means, learn to hear ordinary speech, yet the advantages of hearing a few even exaggerated vocal sounds when he is trying to acquire the faculty of speech, are almost incalculable.

So closely related are the mechanisms of speech and hearing that for many years deaf-mutism was thought to be the result of a faulty development of the motor mechanisms of speech, and this erroneous view with reference to the etiology of the affection served to some extent to delay the adoption of the oral method in the

education of the deaf. For a long time, it was not thought possible to teach them to speak, and so other languages than that of speech were employed.

Although many methods have been used, they may now be divided into two general classes—first the oral method, and second, the manual method. A third class may be added, namely, the combined oral and manual method, but this has few advocates at the present time, and it is of doubtful utility except in a very limited number of cases.

There are few physicians or teachers now who do not favor at least a trial of the oral method in the education of the deaf, the objections to its use having resolved themselves into two—first, the difficulties arising in its application, and second, the possible lack of its universal applicability. As to the first objection, it may be said that no one should seriously consider abandoning a best method in any department of education because it is not easy of application; and as to the second objection, it may be said that few procedures, either in medicine or in education, are applicable to all cases.

The arguments in favor of the oral method, at least in the majority of cases, are so convincing that there can be no doubt in receptive minds of its superiority over all others. It is only through the aid of spoken language that abstract thought and the highest degree of mental development are at all attainable. This is due largely to the fact that it is only by means of speech that one can make himself thoroughly understood, and it is only by the understanding of speech that one can get a clear knowledge of the finer shades of meaning in thoughts or things.

Speech, as I have said, is the one thing more than all others that distinguishes man from the lower animals, and without speech the difference, at least in some cases, may be not very great.

To teach the deaf child to speak is not a difficult matter, if one knows how to do it and goes about it in the right manner. Speech is the natural method of communication between individuals, and it is naturally and automatically acquired by normal hearing children; but many who hear very well require assistance in the development of speech, a fact which should be more generally recognized.

It is the physician who first sees the deaf child, and it is he who should first diagnosticate his deafness. The physician should do all in his power to prevent the diseases, general and local, of which deafness is a symptom and a result.

Cerebro-spinal meningitis and the exanthemata are especially liable to result in deafness, and when they cannot be prevented, the care of the ears during the attacks should be considered of great importance. Moreover, acute inflammatory conditions of the middle-ear, so common in young children, should have prompt attention, in order to prevent deafness or hardness of hearing, which is so sure to result in mutism. Instead of this careful management of the ears during the acute infectious diseases, utter neglect of them is too often the rule, and instead of the careful treatment of local diseases of the ear, which nearly always result in impairment of hearing in young children, and attention to delayed or faulty development of speech, assurance is too often given that the child "will grow out" of the condition. It is true that some children do not begin to speak before the third or fourth year, but it is equally true that all children who are thus tardy in the acquirement of speech should have prompt assistance under the advice of the physician, whether or not they are hard of hearing. In other words, they should be helped to "grow out" of their difficulties.

Many children have perforce joined the ranks of deaf-mutes, who might have acquired speech in the normal manner, if the preventive or curative measures herein suggested had been adopted during early infancy. Advanced otology has hitherto failed to exert its full powers in the direction of prevention of deafness, and this is especially true in the case of very young children. Specialists in otology unfortunately are not consulted until positive proofs of the deafness are manifested in the third or fourth year, whereas deafness is often acquired in the first and second years through the neglect of inflammatory nasal, post-nasal, and middle-ear conditions.

I would have the prevention and treatment of deaf-mutism begin at the earliest possible moment. A thorough examination of the throat, nose, and ears by the skilled specialist, in order to detect possible causes for future deafness in very young children, should be the rule, and suitable measures for the removal of possible causes of deafness should at once be employed.

When the development of speech is delayed beyond the middle of the second year, this careful examination becomes imperative, and suitable educational measures should at once be adopted to assist the child in the acquirement of speech. If hardness of hearing is diagnosticated, every possible means should be employed to increase and develop the hearing-power. Tuning-forks, musical instruments, and especially the speaking-voice in close approxima-

tion to the ear should be used with a view to teaching the child to hear, always remembering that the sense of touch is susceptible to improvement by training, and that a little hearing, if it be only for very loud sounds, is of very great value in the education of the deaf. This work should be begun in the home and much of it can be done by an intelligent mother or nurse.

Valuable time is often lost by the early neglect of educational measures in the treatment of children with delayed speech-development, whether it be due to deafness or to something else. The deaf child should have as much attention as the hearing child, and even more. He should be talked to, and talked at, and he should be encouraged to return the compliment. His natural tendency to babble and prattle during infancy should be made use of as a beginning for speech-production, and his sense of touch, so keen in early childhood and so easily lost when neglected, should also be trained to the highest possible extent, on account of its value as a means of acquiring articulate speech.

By way of illustration of the practical value of some of the measures which I have advocated for the treatment of deaf children, I beg leave to report a case and exhibit the patient. This child's treatment began too late by about six or seven years to show the importance of very early treatment; but her history will show particularly well some of the advantages of keeping bright and otherwise normal deaf children in the home and in the environment of hearing people during the first years of their education, especially when there are not too many other children in the home, and when the mother has the necessary time and intelligence to co-operate in the work. Evelyn W., 12 years of age, was a deaf-mute until October, 1906, at which time her treatment was begun. She was then in her eighth year, showed no evidences of any hearing, and made no attempt to speak. She is an only child and there is no hereditary taint, although she has never been very strong and she had a slight attack of whooping cough when about 3 years old. She also had hypertrophied faucial and pharyngeal tonsils, which were removed July, 1907, and the general condition of her nose and throat was improved.

The child was absolutely mute when she came to me four years ago, and the usual tests failed to elicit evidences of any hearing-power. She babbled and prattled during infancy and early childhood, although her only language was of a sign and pantomime character.

After the removal of her tonsils and adenoid, the usual measures were employed in an effort to develop some hearing-power, and the task of teaching her to speak and to read speech was immediately begun in my office. The treatment has now continued over a period of four school-years, with a vacation of three months during each year, and her visits during that time have been only two a week. The child has developed no hearing-power whatsoever in the left ear; but she can distinguish words that she knows when uttered in loud tones and in close approximation to the right ear. Moreover, latterly, she seems to have been able to hear loud factory whistles and bells, and on one occasion, she appears to have noticed the striking of a clock.

This case, as I have said, illustrates what an intelligent mother may do for her deaf child in the home when she has the inclination, the time, and the proper direction, and it seems to illustrate also the fact that some deaf children may be educated more satisfactorily in their homes and in the environment of hearing people than in connection with other deaf children in institutions.

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**Ulcero-Membranous Laryngitis.** E. J. MOURE, *Rev. hebd. de Laryngol. d'Otol. et de Rhinol.*, March 11, 1911.

Under this title, Dr. Moure describes two interesting cases which, except for the location, resembled Vincent's angina. The larynx is covered with a grey exudate on an ulcerative base which bleeds easily. The laryngeal stenosis becomes gradually worse, so that tracheotomy to prevent asphyxiation becomes necessary in the majority of cases.

The bacteriologic examination shows the presence of fusiform bacilli and generally also of spirillae mixed with other microbes that are usually found in this region.

The prognosis is grave, not only on account of the severity of the local symptoms, but also by reason of the complications which may involve the liver, heart, nerve centers, etc.

For local treatment, Dr. Moure prefers a powder made up of equal parts of perborate and benzoate of soda, and internally chlorate of potash. In the cases described, the patients recovered after three months of treatment.

SCHEPPEGRELL.

## REMOVAL OF SCISSOR-BLADE FROM EAR THREE YEARS AND THREE MONTHS AFTER ITS INTRODUCTION.\*

BY OTTO J. STEIN, M. D., CHICAGO.

This piece of a scissor-blade was removed from the ear of a colored man 43 years of age. It was removed February 17, 1911, or three years and three months after its introduction.

The first time the patient presented himself was on September 1, 1909, with a history of having been stabbed in front of the left ear with a pair of scissors in the hands of a hot-tamale man ten months previously or in November, 1908. At the time of the injury he entered Cook County Hospital and the attending surgeon performed a post-auricular incision removing two pieces of steel. Following this the ear continued to pain and a profuse suppuration from the canal ensued. This condition continued to prevail at the time he presented himself on his first visit to my clinic at the Post-Graduate Hospital. At this time the examination disclosed a piece



Photograph of scissor-blade; one-sixth original size.

of metal, easily seen and felt, in the auditory canal. The patient was advised to enter the hospital for its removal but was not on hand on the day set for the operation and was not seen again until February 17, 1911, or seventeen months afterwards. At this second appearance the ear presented considerable swelling in front of and below the auricle; pain and a profuse and fetid discharge from the meatus. A piece of metal could easily be distinguished about one inch down the canal blocking it entirely. A hooked probe showed it to be firmly imbedded. The patient now readily consented to have it removed and an incision was made back of the auricle through a considerably infiltrated tissue until the bone of the process was reached and resting against the anterior surface of its bony tip was found the pointed end of the scissor-blade. The opening in the posterior membranous wall was enlarged to admit of the delivery of the blade. It lay in an oblique direction from above and anterior to the tragus through the anterior-superior

\*Read before the Meeting of the Chicago Laryngological and Otological Society, April 18, 1911.

angle of the membranous wall, and across the auditory canal, and through the inferior-posterior angle of the membranous wall, so that the point of the blade rested against the anterior surface of the mastoid tip with one flat surface towards the drum-membrane and the other presenting towards the external meatus.

Upon its removal with forceps the blade showed considerable corrosion. The blade measures  $1\frac{3}{4}$  inches long;  $\frac{1}{2}$  inch wide at its broadest edge and  $\frac{1}{8}$  inch at its back.

32 North State Street.

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**Pebble in the Right Bronchus.** A. MARTIN, *Rev. hebdomadaire de Laryngologie, d'Otol et de Rhinol.*, February 18, 1911.

A child of five and a half years, while playing with pebbles, aspirated one into the right bronchus. During a preparatory operation of tracheotomy for the removal of the foreign body, the pebble was expelled and lodged in the glottis whence it was removed by a crico-tracheotomy.

The author calls attention to the tolerance of the bronchus to a foreign body as indicated by the comparatively slight disturbance, being so mild that two experienced physicians refused to believe that the pebble had been inhaled. A radioscopy showed the pebble in the right bronchus at its first bifurcation. SCHEPPREGRELL.

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**Chronic Rhinitis.** C. C. GRANDY, *Jour. A. M. A.*, Jan. 28, 1911.

Grandy reports a case of severe chronic influenzal rhinitis treated by vaccine therapy with a culture of autogenous influenza-like bacilli from the discharge, resulting in great improvement. The bacillus was not motile and was regarded as an influenza-like bacillus because it was small, Gram-negative and grew in symbiosis. The vaccine was prepared by heating the bacillus at 56° C. for thirty minutes. Three months later the patient was in the best of health, but still had a small discharge.—Ex.

## REPORT OF A CASE OF SEROUS LABYRINTHITIS AND EXTRA-DURAL ABSCESS. OPERATION; RECOVERY.\*

BY E. T. SENSENEY, M. D., ST. LOUIS.

Serous labyrinthitis may arise during the course of acute or chronic suppurative otitis media, or after operations on the middle-ear and mastoid. It is more common in those cases of acute otitis media and acute exacerbations of chronic middle-ear suppuration where there is also an involvement of the mastoid cells. The post-operative type is usually seen after extensive mastoid surgery, although it may follow minor operations on the middle-ear (as ossiculectomy, removal of polyps). It may occur from a few hours to five (or more) days after operation.

The inflammation extends to the perilymph and endolymph by the absorption of toxins or bacteria, through the intact membranes of the foramen rotundum, the foramen ovale, and healed fistulae, or by means of the blood and lymph channels. The post-operative type must be considered a collateral edema. That type where there is no entrance of bacteria but only of toxins into the labyrinth, has been termed from a pathological standpoint, "toxic labyrinthitis." Clinically the picture is the same. In either case there results a coagulation of the perilymph and endolymph, and serous exudation. The organ of Corti may show degenerative changes.

The onset may be sudden or gradual. The temperature may be normal or slightly above normal. The pulse is usually rapid. The patient complains of tinnitus, dizziness, nausea and disturbances of equilibrium. Those cases whose development is gradual show at first symptoms referable to inflammation of the perilymph. Hearing tests show the hearing greatly impaired, but give the picture of obstruction of sound-conduction. The vestibular apparatus reacts. Spontaneous nystagmus is present, and may be to the diseased side or to both sides. In the latter case it usually is more pronounced to the diseased side. It is rhythmic and rotatory. Occasionally the nystagmus consists of wide sweeping movements of the eyes from side to side. With the full development of the disease and the involvement of the endolymph, spontaneous nystagmus is

\*Read before the Meeting of the Oto-Laryngological Section of the St. Louis Medical Society, March 29, 1911.

directed toward the healthy side. Vertigo, nausea and disturbances of equilibrium continue.

Those cases in which the onset is sudden give the latter picture on our first examination. The patient is absolutely deaf on the affected side, both for speech and for tuning forks. (Theoretically hearing may be present, but this is extremely problematical). The vestibular apparatus may or may not react to the caloric test. Fortunately in the great majority of cases it does react (caloric test). There may be facial paralysis of the affected side.

Recovery is the rule and is rapid. Spontaneous nystagmus becomes daily of less degree and disappears. Vertigo, nausea and disturbance of equilibrium cease. Caloric nystagmus if negative soon becomes positive. The vestibular apparatus being very resistant finally is little, if at all, affected. Hearing returns more slowly, and the inflammation may leave the patient absolutely deaf or with greatly impaired hearing. Hearing in many cases returns to normal. Facial paralysis when co-existent rapidly disappears with the restitution of the vestibular function.

Serous meningitis and facial paralysis may exist as complications. The facial paralysis in this connection is due to a serous exudation around the perineurium or in the nerve itself. Diffuse suppuration may supervene.

Serous labyrinthitis must be differentiated from acute suppurative labyrinthitis (arising during the course of severe general infections as scarlet fever and diphtheria), and chronic circumscribed labyrinthitis, and chronic manifest or chronic latent diffuse suppurative labyrinthitis. In the first class the picture is obscured by the severity of the symptoms of the general infection. The differential diagnosis to be of any value must be made before the appearance of meningeal symptoms. This can only be accomplished by the caloric test (in serous labyrinthitis, usually positive and in the suppurative type always negative). Whether the use of the caloric reaction in this type of case, acute suppurative labyrinthitis, is or is not a dangerous procedure is still a debatable question. This statement does not apply to the employment of the test in serous labyrinthitis where it is harmless, or in the several forms of chronic labyrinthitis where its use, in the light of our present knowledge, is imperative.

In chronic circumscribed labyrinthitis we have a history of previous symptoms referable to the labyrinth (attacks of dizziness, etc.), and we may elicit the fistula symptom (compression nystagmus). The differential diagnosis may be very difficult in those

cases of serous labyrinthitis where a circumscribed labyrinthitis has pre-existed. Here we may get the same previous history and also the fistula symptom. However, in these cases the differentiation is not of such great importance, since the treatment of the two conditions is identical.

The differential diagnosis between serous and chronic diffuse manifest suppurative labyrinthitis is of the utmost importance and is usually readily made by means of the caloric test. This reaction is always negative in diffuse suppuration (the vestibular apparatus not functioning), and nearly always positive in serous inflammation of the labyrinth. (When the caloric test is negative, we must also take into consideration the general condition of the patient and the severity of the symptoms referable to the labyrinth. In manifest suppuration fever is always present, pulse rapid, and the vestibular symptoms, nystagmus, dizziness, etc., are severe. Nevertheless, in cases where the caloric reaction cannot be elicited, the differential diagnosis is practically impossible). Diffuse latent suppurative labyrinthitis may be recognized by the caloric test and by the absence of symptoms referable to the vestibular apparatus. In this connection may be mentioned tubercular labyrinthitis. The progress of this disease is so slow that the patient rarely if ever shows any vestibular symptoms, but only complains of increasing deafness and pronounced tinnitus. Tubercular labyrinthitis rarely leads to tubercular meningitis.

The treatment of serous labyrinthitis per se is not surgical, but constitutional (rest in bed, diet, etc.). The treatment of the underlying condition is surgical. When serous labyrinthitis arises during the course of acute or chronic otitis media and mastoiditis, the appropriate mastoid operation should be performed at once. Following the operation the patient must be carefully and closely watched and the functions of the internal ear frequently tested. If during the course of the disease we find the patient to be entirely deaf, proved with the Sound Block or Laerm-apparat, and if there is absolutely no reaction to the caloric test, (and where a fistula exists there is no fistula symptom), a labyrinth operation is immediately indicated. While it is true that by adhering to the above indications a small proportion of cases will be operated upon where resolution would take place without operation, nevertheless it must be remembered that in serous and diffuse suppurative labyrinthitis, before the appearance of meningeal symptoms, the labyrinth operation properly performed has practically no mortality.

THE  
CLINICAL  
EXAMINATION

SENSENEY: SEROUS LABYRINTHITIS.

Following the recovery of the patient hearing-tests should be made at intervals to determine the degree of impairment. The vestibular function of both sides should be compared for the same purpose.

REPORT OF CASE.

Grace D., aged 22, entered the Washington University Hospital, February 20, 1911. On January 17, 1911, had severe pain in the left ear, followed by discharge. There was no history of previous ear-trouble. For the five days previous to her entrance in the hospital she complained of excessive tinnitus, dizziness, nausea, vomiting, and disturbance of equilibrium (falling towards the healthy side).

Examination. Temperature, 98.2° F.; pulse, 120; respiration, 56. Rotatory nystagmus to the left. Patient became dizzy during examination and fell to the right. Aural examination showed marked sagging of the post-superior wall of the external canal, extending to the isthmus. The rest of the lumen of the canal at this point was filled with a soft polyp. Profuse purulent discharge. The mastoid showed slight tenderness on pressure, no redness, but little swelling, and slight edema. Hearing tests (proved with Sound Block); whispered speech, 18 in.; tuning forks, C not heard, c<sub>4</sub> heard; Weber "in head." No fistula symptom. Taken to operating room.

Operation: Polyp removed. Simple mastoid operation. The outer surface of the mastoid was nearly normal. Mastoid cells were necrotic, broken down, filled with pus and largely destroyed. Sinus was laid bare by the necrosis and its external wall was covered with granulations. There was a perisinus abscess and extradural abscess extending back 2½ inches from external canal. Inner plate of bone was necrotic to the same extent, and the dura was covered with granulations. All necrotic bone removed and wound dressed.

The first day after the operation: Temperature, 99.9° F.; pulse, 96; respiration, 26. Patient says she feels good. Has "strange feeling" in head, but only slight pain. Rotatory nystagmus to right (healthy side). Hearing, questionable. Second and third days post-operation: Temperature, 100° F.; pulse, 100; respiration, 24. Patient says she feels dizzy. Rotatory nystagmus to right but less than on the first day post-operation. Complete deafness in left ear. Caloric reaction positive and fairly prompt. By the fifth day post-operation nystagmus had disap-

peared." Temperature, 99° F.; pulse, 90; respiration, 24. Complete deafness. Caloric reaction positive. Recovery was rapid and uneventful. Examination March 20, twenty-eight days after operation showed the membrana tympani to be practically normal, no perforation. The operative wound was healing very rapidly. There was still complete deafness on the left side.

Examination March 29, 1911, thirty-six days after operation. Hearing tests: whispered speech 3 feet, c1 heard, c4 heard, (proved with Sound Block), Weber to the left.

The above is a fairly typical case of serous labyrinthitis of gradual onset. The labyrinth became involved during the course of an acute otitis media with extensive bone-involvement. The functional tests showed an involvement of the perilymph, followed later, after the simple mastoid operation, by extension to the endolymph. There were definite symptoms referable to the labyrinth—tinnitus, deafness, vertigo, disturbance of equilibrium, spontaneous rotatory nystagmus. The vestibular function was at no time completely lost—proved by the positive caloric reaction. Other inflammations of the labyrinth are eliminated by the history, absence of the fistula symptom, and the positive caloric reaction. The diagnosis is further confirmed by the partial restoration of hearing. How complete this restoration will be, is at present a matter of conjecture. At no time was the labyrinth operation indicated. Nor do I think the radical mastoid operation to have been indicated. The history and the findings at the time of the operation pointed so definitely to an acute inflammation, that the simple mastoid operation, with careful removal of all diseased bone, seemed the proper procedure. The fortunate termination proves the rationale of this treatment in this particular case.

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## FETID NECROSIS FOLLOWING THE SIMPLE MASTOID OPERATION.\*

BY HARRY FRIEDENWALD, M. D., BALTIMORE.

The pathological processes within the mastoid resulting from acute otitis media are commonly described under the term of acute mastoiditis. Most writers and even the authors of the most authoritative works make no effort to distinguish between conditions essentially different. I have been able to find but one who gives a clear description and differentiation. Koerner is the writer to whom I refer. In his work on the purulent diseases of the temporal bone,<sup>1</sup> he divides these processes into (1) empyema; (2) softening and dissolutions of the bony substance, and (3) necrosis.

The first-named condition, empyema, he restricts to those cases of inflammation and suppuration within the cellular spaces of the mastoid but without involvement of their bony wall. He describes this condition as occurring frequently in the course of acute inflammation of the tympanic space; recovery often occurs without destruction of the bone when the pus is freely evacuated through the opening in the drum-head.

The second condition named follows the thickening of the inflamed mucous membrane and periosteal lining. The thickening proceeds until the spaces are filled and the further increase takes place at the expense of the bony separating and outer walls, which become softened and disintegrated. The profuse purulent exudate poured out by the large surface of this granulation-like tissue escapes through the clefts into the middle-ear and out through the perforation. As a result little or no pus is often found in these cases during the operation, which discloses the bone softened and friable. It is unnecessary to dwell here on the extent to which this process may go, how it may invade the diploe and the different courses it may take in breaking through the cortex of the bone.

The third condition which Koerner differentiates, is necrosis due to acute otitis media; he states that the acute form quite as readily produces necrosis as does chronic purulent otitis media; indeed he attributes all the cases of extensive necrosis to the acute form.

\*Read before the Meeting of the Ophthalmological and Otological Section of the Baltimore City Medical Society, December 21, 1910.

(1) Koerner, Die eitrigen Erkrankungen des Schlaefenbeins, Wiesbaden, 1899.

The process of necrosis advances much more slowly than does the softening process just described. Koerner calls attention to the fact that this process both in its origin, its course, its prognosis and its treatment, is essentially different from the other which is frequently termed caries. It is not an advanced stage of the later condition. Necrosis is much the rarer condition; Koerner observed but six cases to one hundred of the others. It is most frequent in children and especially in those suffering with hereditary syphilis; cases following scarlet are likewise disposed to necrosis but it may occur in other forms. Tuberculosis appears to be a strongly predisposing factor at all ages, but in these cases necrosis is frequently associated with the softening process. It is characteristic of this process that the lining membrane of the cells does not show hyperemia, swelling and exuberant growth but is thin, bloodless, discolored and the air-spaces are either empty or contain a thin and fetid pus. The bone likewise presents destruction of the blood-vessels, is at first white, later gray or brownish, remains hard and does not bleed when chiseled. A granulation-surface of demarcation is slowly formed about the sequestrum. The granulations may extend into the spaces of the dead bone but they do not soften it or destroy its form even after long periods. This distinguishes the necrosis process from those disintegrating bones described under the second heading.

The signs of necrosis are at first similar to those of acute softening though swelling of overlying tissue usually occurs earlier because the necrosis commonly involves the cortex; as a consequence sub-periosteal abscesses occur early and fistulae are apt to arise. Months and even years are required for the sequester to become entirely separated. Paralysis of the facial nerve is more common in this form of mastoid involvement.

The diagnosis can only be made with certainty when the sequester is found either by inspection or with probe. This condition demands the removal of all dead bone until a bleeding surface is reached; the portions of dead bone that are then left are easily removed during the after-treatment; until all are removed the wound must be kept open. On the other hand if the sequester has already separated its complete removal at the operation is very easy.

The two cases which I shall report have very definite bearing on the subject of necrosis, though they both occurred subsequent to the operation for acute mastoiditis. In this respect they appear to me to be unique—I have been unable to find any cases similar to them or any references bearing upon them. They appear to me to









illustrate the distinction between the two chief forms of bone involvement following acute otitis media; for in both the condition found at the time of the operation was clearly the softening process upon which the necrotic supervened.

The first patient, an infant about eleven months of age, was seen on March 27, 1908, on account of an acute otitis media of two days' duration, following an acute inflammation of the tonsils and adenoid. The right ear had begun to discharge freely before my visit. Irrigation with boracic acid was ordered. On April 1, I observed marked swelling of the glands on the right side of the neck and also swelling of the auditory canal. The aural discharge had diminished. There was very slight fever. The irrigations were continued. The glandular involvement increased slowly and numerous little pustules developed over the neck and body. On April 19, there was swelling over the mastoid and fluctuation behind the auricle. The mastoid operation was performed the same day at the Baltimore Eye, Ear and Throat Hospital. Pus was found under the periosteum. The surface of the bone was soft and rough with one small opening over the antrum. The mastoid was opened carefully; the operation was done entirely with a sharp spoon, the bone being soft and vascular and but one cell of moderate size was found in the tip. The antrum was easily entered. The entire mastoid was very small. The wound was carefully cleansed, packed and dressed. The infant appeared to be very well after the operation and was allowed to be removed to its home on the following day. On the second day after the operation the very offensive odor of the dressing necessitated dressing of the wound which was found filled with fetid pus. From this time on the wound was dressed daily. The temperature during this time did not reach 100° but fluctuated about 99°. On April 23, an extensive erythema multiformis appeared, covering a large part of the body. As the wound became cleaner, the white bone uncovered by granulations presented a finely cellulated appearance. As the wound became less purulent and the odor diminished, the dressings were made less frequently. There was a continued discharge from the auditory canal during this entire period. On January 29, 1909, I had the adenoid removed, partly because it produced marked obstruction and partly because of the hope that this operation would benefit the aural condition. In the meantime the child's general health had improved greatly; it had gained in weight and on May 3, 1909, I enlarged the wound and removed a large sequester which showed that it extended deeply and encircled the entire original bone-wound. This had become entirely separated. Af-

ter its removal the cavity was explored and no uncovered bone was found. The wound healed but not completely, and on August 15, a small piece of bone was again removed after which recovery took place. The child when last seen showed great improvement in its general health. The drum appeared normal and his hearing seems good. There is still occasionally a little discharge of pus from the wound, lasting for a day.

The second patient, a male, colored, aged 21 years, was admitted to the Mercy Hospital on April 6, 1910. He complained of pain in the right ear and there was edema about it. His past history excepting recent lues had no bearing on the present condition which dated from sometime early in March, when he was seized by severe pain in the right ear, which was soon followed by an aural discharge. He neglected this condition for about a month, at the end of which time the pain in and behind the ear compelled him to seek aid in the hospital. There was a profuse otorrhea and marked edema which pushed the auricle forward in the characteristic manner. At this time his temperature was 102°. He was prepared for an operation on the following day. No sub-periosteal abscess was found. The cortex was thin. The bone was not hard and was vascular. There was no evidence of necrosis. The pus was not foul. The diseased bone was thoroughly removed and the wound was packed and dressed in the usual manner. Patient was returned to me in good condition. His temperature as will be seen in the accompanying chart continued high, fluctuating markedly. On the third day the dressing was changed and the cavity was found to contain very offensive pus. The dressings were renewed daily. Cultures were taken on the fifth day and showed a pure culture of the colon bacillus. At this time some impairment of motion of the right side of the face was noticed; this slowly advanced to complete facial paralysis about the twelfth day. A complete physical examination was made at this time which revealed a very active pulmonary tuberculosis. About the sixth day an acute attack of tonsillitis came on. The bone-wound in the meantime showed no granulations, excepting in the tip of the mastoid and presented the same cellulated appearance described in the previous case. The pus remained fetid in spite of the frequent cleansing. The patient's condition rapidly became worse. He lost weight and strength while the pulmonary trouble advanced and he died from exhaustion on June 4. An autopsy could not be obtained.

In both cases I wish to emphasize the fact that at the time of the operation there was no evidence of necrosis, either in appear-

ance of the bone or in the character of the discharge. In both, it manifested itself within a couple of days after the operation by the peculiar fetid odor and by the appearance of the bone. In the second case the condition may be ascribed to the tuberculosis and its debilitating effect; in the first to the impaired constitution of the infant and the malignancy of the infection as was shown by the extensive involvement of the cervical glands. In both cases it seems as though the operative interference was the immediate cause of so lowering the local resistance as to allow it to succumb, in the form of necrosis, to the infection which had produced only softening until then. The death of the second patient was due to the rapid advance of the tuberculosis. To what degree this progress was hastened by the absorption from the fetid pus, I am unable to state. Nor can I suggest any method by which this complication could have been averted, for in both cases the greatest aseptic care was exercised. I report the cases partly for the reason that they illustrate a very unusual post-operative complication and partly because they emphasize the difference between the forms of involvement of the mastoid consequent upon acute purulent otitis media.

1029 Madison Avenue.

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**Treatment of Diphtheria Bacillus-Carriers.** M. KRETSCHMER, *Med. Klinik*, Jan. 15, 1911.

Kretschmer states that the diphtheria bacilli often lurk in the recesses of the tonsils long into convalescence, and he has succeeded in freeing thirteen patients from them by crushing the tonsils, thus squeezing out the plugs and secretions. He did this from one to nine times in the different cases, finally freeing the diphtheria convalescents in this way in from seventeen to thirty-eight days after the commencement of the disease. The results were promptest with the more accessible tonsils, more repetitions being necessary when the tonsils were far back.—*Ex.*

## THE HISTORY OF AN INTERESTING CASE OF LYMPHO-SARCOMA OF THE PHARYNX (SOFT PALATE), WITH UNUSUAL LYMPHATIC INVOLVEMENT.\*

BY OTTO J. STEIN, M. D., CHICAGO.

The subject of this report was referred to me by Dr. Daniel Rogers and was seen at my clinic at the Post-Graduate for the first time, May 16, 1910.

F. H., male, 53 years of age; German, shoemaker; complained of a dysphagia and a dyspnea. Family history: Mother died in childbirth; father died of old age. Patient is married; wife is living. He has eight children, all well, and no children dead. Has also four brothers and two sisters, all well. None dead. Four months previous to his appearance at the clinic there appeared a small swelling on the back of one hand. This was followed by another on the finger and accompanied by some slight lymphangitis of hand and forearm. They were incised by a physician and said to contain fluid. Both readily disappeared without further trouble.

Attention was attracted to the throat for the first time. It felt full and rough, and the neck began to enlarge.

In the past four months or from the onset of his trouble to the time of my first seeing him his weight has decreased from 155 pounds to 107 pounds. Up to recently his strength remained fairly well, although a cachexia was distinctly noticeable. There was pain on swallowing, as well as some trouble in getting solid food down, not so much from the pain alone as from obstruction or lack of propulsion of the constrictors. His desire for food was normal and he enjoyed all he could get down.

There was difficulty in breathing but this did not come from any obstruction in the nose, for the nostrils presented nothing abnormal. His temperature was 100° F., and his pulse 120, with occasional night sweats. Both sides of his neck were enlarged, the result of glandular hyperplasia. So extensive was this that the entire chain from the back of the ears to the clavicles participated in the swelling, so that it appeared somewhat as a huge mass, although some individual glands could be distinguished. They all felt hard although they were not painful. The interior of the throat presented a remarkable appearance. The whole of the meso-pharynx

\*Read before the Meeting of the Middle Section of the American Laryngological, Rhinological and Otological Society, Indianapolis, March 1, 1911.

was literally filled with gland hyperplasia, and upon more thorough inspection, this condition could be seen invading the epipharynx and also the hypopharynx. The examination of these latter regions was made difficult owing to the extreme narrowness of the parts, due to the gland enlargement. Distinct almond-shaped masses, covered by normal-appearing membrane, but of yellow-pink color, grouped themselves in close proximity along the sides and posterior wall of the pharynx, from high up in the epipharynx to as far down in the hypopharynx as one could see. Some of the masses were as large as the end of a finger and they were hard and smooth to the touch. Both of the anterior and posterior pillars were thickened and fused with an infiltrate of the entire soft palate and uvula. It was with the greatest difficulty that a glimpse of the larynx could be had and it seemed to be free from involvement.

The faucial tonsils were very much enlarged and their membrane much redder than that of the pharynx proper. They greatly resembled the hypertrophy seen at times in young adults. The right tonsil was deeply ulcerated in the center, the ulceration amounting to a necrosis, irregular in outline at its edge but crater-like in depth. It was much like a Vincent's angina or a *lues*, with a yellowish-grey surface covering a deep-red, irregular and granular-like bed and imparted a musty odor to the breath. No other ulceration was in evidence. A smear from the ulcer showed a few pneumococci, staphylococci and fusiform bacilli.

A tentative diagnosis of lympho-sarcoma was made with its probable primary origin located in the right tonsil. A large piece of the right ulcerated tonsil was removed and upon section and examination was reported by Professor Zeit as "hyperplastic lymphadenoid tissue." This finding rather confused me. Although the throat was filled with lymphoid masses and the velum palati and faucial pillars were infiltrated, there was no other place besides the ulcerated tonsil that indicated by sensation of the patient or inspection that there was another primary site of malignancy. It then suggested itself that owing to the extensive lymphatic involvement in the throat and neck this might be a leukemia or pseudo-leukemia. The patient was submitted to the examination of Dr. Arthur Elliott but no further evidence of leukemia was found. Neither the spleen nor the bones showed any changes, nor was there enlargement of the lymph glands in other parts of the body. The blood examination showed white blood corpuscles 15200, thirty-eight per cent lymphocytes: four per cent large mono-nuclear; fifty-seven per cent neutrophiles; one per cent eosinophiles. The red blood

corpuscles were 2896000 with a ninety per cent hemoglobin. No parasites.

This blood-finding did not give license to a diagnosis of leukemia but did resemble that of a secondary anemia or a pseudo-leukemia. The patient was placed upon arsenic. The liquor potassii arsenitis being used in five minim doses three times a day.

Four weeks after his first appearance a second piece of tissue was excised from his throat for examination. This time one of the largest masses in the posterior pharynx wall was taken and in due time was reported by the laboratory as hyperplastic lymphoid tissue. Three weeks later, July 9, 1910, the patient showed marked improvement in his general, as well as in his local condition. He felt better and stronger.

The dyspnea was still present, but only slight, and the dysphagia had entirely disappeared in spite of the fact that he now had a large necrotic area in the center of his left tonsil, while the right tonsil that presented a similar appearance at first had entirely healed. A culture taken from this tonsil showed only a few pneumo- and staphylococci. The patient was working daily at his trade as shoemaker and continued the use of the Fowler's solution. Once more tissue was taken for examination and this time it was taken from the left tonsil and also from the lateral fold. The report returned by Prof. Zeit declared them to be lymphoid tissue. Another blood examination now showed a pronounced improvement in the anemia. The red blood corpuscles showed 4128000 with a ninety per cent hemoglobin. The white blood corpuscles showed 14800: fifteen per cent lymphocytes; nineteen per cent large mononuclear; sixty-six per cent neutrophiles.

The enormous mass of gland enlargement so prominent in his neck at the beginning was now reduced considerable. The deep ulceration in the left tonsil soon healed without any local treatment. Only the arsenic internally was used.

About a month later, August 10, the patient again presented himself feeling and looking very badly. All the glands about the neck and throat had taken on renewed activity and had increased to almost incredible proportions. The patient was apparently suffocating. He suffered pain on swallowing and otherwise, especially in the ears. The interior of his nose was free. The naso-pharynx was literally filled with the large lymph-gland masses but all were firm and smooth and free from any ulceration. But the soft palate and uvula were so infiltrated and under such tension as to allow of no motion whatsoever. The lingual surface of the center of the soft

palate and down to its free margin showed a distinct superficial ulceration the size of a quarter of a dollar. There was the active process that we had been searching for so long. A large piece as big as the end of the thumb was excised from the edge of the soft palate. This afforded him breathing space and gave the specimen required for microscopic examination. This piece of tissue was friable and cut readily, almost broke off, and did not bleed any. The laboratory report showed it to be a small round-cell sarcoma.

The patient was now placed in charge of Dr. Cushway for treatment with the X-rays, not with much hope of improving the malignancy, but for the purpose of relieving the pain, which this therapy at times effects. He continued these treatments but a short time for he rapidly grew so weak as to confine him to bed, where he died a few weeks later from suffocation and inanition.

This case demonstrates most beautifully the possibility of early, prominent and extensive lymph-gland enlargement in the pharynx and neck long before the discovery of a primary tumor. If this was a case of lympho-sarcoma from the beginning, then it was of the infiltrating type and not circumscribed, and its residence lay hidden within the soft palate. It will be seen that the infiltrating character of the velum palati was noted carefully at the beginning, although no sign of a primary lesion at this point could be detected. As a rule, only ordinary enlargement of neighboring glands accompany sarcoma of the throat. The location of the neoplasm seems to influence this somewhat, although the variety of the growth is a greater determining factor, for most all lympho-sarcomata of the throat are associated with extensive gland involvement.

But the presence of a pronounced anemia, as in this case, associated with a colossal hyperplasia of lymphatic tissue may justly create an inquiry as to the causal relationship of the two conditions. When extraordinary gland involvement is present the question of the existence of a leukemia or pseudo-leukemia arises, and what is still more interesting the relationship of the leukemia or pseudo-leukemia to the sarcoma. The blood-finding in this case ruled out leukemia, but not necessarily pseudo-leukemia; the slight leucocytosis being perfectly compatible with the latter condition.

It has long been hinted at that some blood dyscrasia has something to do with the etiology of lympho-sarcoma. Moritz Schmidt's opinion is that many are of luetic origin. That old leutic deposits and scars in the throat have become the seat of a malignancy has often been noted. It has been the observation of different ones

(Kundrat, Stork, Mikulicz) that such blood dyscrasias like anemia, leukemia and pseudo-leukemia are at times associated with sarcoma of the throat. Mikulicz made an interesting observation in one of his cases, that of a woman with lympho-sarcoma of the tonsil, which under arsenic treatment apparently disappeared, but shortly following a typical leukemia developed from which she died. I myself had a case of circumscribed lympho-sarcoma of the left tonsil in a boy of 16 years, in which there was associated enormous lymphatic hyperplasia particularly of the throat, but also of other glands, only to a less extent. The blood in this case showed a great increase in the number of white cells, nearly 50000. The tonsil was dissected en-mass and arsenic employed internally, resulting, as far as I know, in recovery. And that was some three years ago.

In pseudo-leukemia changes of an infiltrating character affecting other than gland tissue, may exist. These diffuse changes are due to an infiltration of the white blood corpuscles. This round cell infiltration gave to the pillars and palate in this case their very thick appearance. And this infiltrated tissue then became the soil for the development of a malignancy.

It would seem from the fact of their association, the prompt response to the arsenic treatment and the similarity in the symptomatology, that we have in this class of blood dyscrasias and lympho-sarcoma, conditions that warrant the closest observations.

The question of treatment in the infiltrating variety of lympho-sarcoma may from the outset be considered as inoperable. Where they have been operated most extensive dissections are necessary and if the patient survives the shock or sepsis, recurrences usually follow. In the circumscribed variety of this disease removal of the growth with the knife and especially early is followed by the best results. Under the inoperable methods employed in treatment there has been used arsenic internally, Hasse's method of alcohol injection; the injection of Coley's solution (erysipelas-prodigiosin toxins), or adrenalin, lactic acid or chromic acid; electrolysis or cataphoresis. Also the electro-cautery and ligation of the carotid artery or its compression after Crile's method may be used.

Only where the patient is in the best condition and the likelihood of actually prolonging life and at the same time improving his condition should extensive operative measures be undertaken, for the shock, loss of blood, consecutive pneumonia and a recurrence are the ever-present dangers.

100 State Street.

## THE SEVERER TYPES OF TONSILLAR INFECTION.\*

BY D. S. DOUGHERTY, M. D., NEW YORK.

While clinical observation substantiated by pathological and bacteriological research, gives undoubted evidence that the tonsil is a decided functioning organ, and that the impairment of this function invites the growth of pathogenic organisms, and opens an easily accessible pathway to systemic infection, a review of the literature on the subject discloses so great a variety of opinion that one is forced to the belief that the field is still clouded with uncertainty. That the tonsil exercises a particular protective influence, is the one point on which all seem to agree.

Magonby, after exhaustive experimentation on the lower animals, came to the conclusion that the tonsils bore important relations to the blood, and that their integrity was an essential factor against the invasion of germs normally present in the mouth.

Packard states that they act as an extra protective group of lymphoid organs, the acute inflammations of which are simply evidence of active battle against the invading infective agents; such action, according to Manfredi, being three-fold—by filtration, by weakening the virulence of the micro-organisms, and by the immunizing of the organ while these processes are in operation.

The power of absorption of the tonsil has been definitely demonstrated by Lexer, Hodenpyl, Goodale, and others, and the migratory leucocyte action by Stohr, Hendelsohn, Ruffer, and a host of collaborators.

Wright, while criticizing the experimental work of Piera, tending to support the theory that bacteria readily penetrate the epithelium of the tonsils, admits that under certain conditions the innocent bacterial inhabitants of tonsillar crypts may be absorbed and produce systemic effects. In a further article, he concludes from sources of pathological and clinical observations, from biological study and experimental evidence, that the function of the tonsil is one of defence against infection.

Brieger and Goerke regard the tonsils, both faacial and pharyngeal, as protective organs of childhood. Robertson expresses the opinion that after the sixth or eighth year of life the tonsils

\*Read before the Meeting of the Laryngological Section of the New York Academy of Medicine, February, 1911.

are pathogenic in character, and as such productive of detrimental influence in rendering the individual unable to cope with infection of various kinds.

Sir Felix Semon states that phlegmons of the pharynx and larynx, anginas, and kindred local affections, are pathologically identical and have their origin in the entrance of germs through the mucous membrane, believing the tonsils to be a natural portal for the entrance of these germs into the system by means of the lymph and blood-vessels.

Infective agents absorbed by the tonsils, find a further pathway particularly adapted for readiness of access to the general system. The lymphatics of the tonsil are numerous, anastomosing freely with those of the adjacent parts. The efferent vessels empty into the superficial and deep chain of cervical glands, and thence into the jugular trunk, which, with the lymph from the subclavian empties more or less directly into the vena cava. As the afferent branches come from the nose and tongue, the tonsils may become portals for indirect infection, having its origin at those points. Although infection may enter through the membrane of the mouth or pharynx at any abraded or diseased point, or even through healthy membrane, causing direct systemic infection or local phlegmonous inflammation with subsequent general sepsis, a careful investigation will show the tonsil to be the original point of invasion in a large majority of cases.

Intimately connected in situation with the tracts of respiration and alimentation and thus constantly exposed and easily accessible, the tonsils seem to invite contaminating influence. Constantly undergoing processes of metamorphosis tending to obliteration; generously supplied with blood, with the lymphatics freely communicating with those of the nose, pharynx, and cervical nodes; with thin epithelial covering without ciliated cells; their crypts communicating with the buccal cavity, they must necessarily be prone to infection from such influence.

The mere statement of the above facts should seem to establish tonsillar infection as a possible factor in systemic disease, but it is doubtful if its full significance and dangers are generally recognized. That rheumatism and kindred disorders and local affections of the throat and neck often arise from such origin, is granted, but many are skeptical as to the probabilities of grave remote affections of tonsillar origin, and especially of the fact that fatal issues can result from so mild a symptom as a simple faucial or tonsillar inflammation.

On the other hand, a few may be inclined, perhaps, to too greatly accentuate this possibility, and in their eager enthusiasm, overlook the probability of other causative agents. In this, as in all medical questions, the most reliable source of knowledge is in the clinical evidence of well authenticated reports of cases. The literature of the past few years contains many of these.

Cases of nephritis, complicating and dependent upon acute amygdalitis, are reported by Morse, Hougarde, Brown, Jessen, Kleineger, and Orschum; endocarditis and pericarditis, by Mayer, Brown, and Packard; Hodgkin's disease, by Swain and Wood; leukemia, by Frankel; appendicitis by Weber; probable pyemia, by Spaet; septicemia, by Jessen and Brown; urethritis and ureteritis, by Hunner. Wood calls attention to the rôle the tonsil plays in pleuritis, and Loeb emphasizes the tonsillar origin and danger of nephritis and pericarditis.

The following cases have been selected from those that have come under the writer's observation, as especially illustrating the severe types of infection.

*Case 1.* Mary T., fur-worker, aged 20, family history good, no previous illness, presented herself at my office May 4 complaining of sore throat, headache, pain in muscles of back and limbs, and feeling of general malaise; temperature normal; pulse 86. Examination showed mucous membrane of fauces and pharynx congested; right tonsil and peri-tonsillar tissues swollen; throat extremely painful to touch externally. Applied 20 per cent solution of nitrate of silver, and administered calomel and sodium salicylate. May 6, I again saw her in my office. She felt much better; throat improved but still slightly swollen and inflamed. On May 9, I was called to see her at her home, and found that she had seemed to improve until the day before, when she had had a severe chill, headache, and pain in back of neck. Temperature 100.3°, pulse 120; throat more generally phlegmonous and of a peculiar purplish color. I incised it, but found no pus, even on deep exploration. During the next two days the throat symptoms subsided, but the patient still complained of headache, nausea, and some vertigo,—temperature low, ranging from 99° to 100°. Smears of muco-serous exudate from the tonsil showed the presence of staphylococci and streptococci. Blood-count: Leucocytes 13,000; polynuclear ration 78 per cent. May 12 to 15: Drs. A. R. Robinson and J. A. Bodine became associated with me in the treatment of the case. The blood-examinations for typhoid and malaria were negative. Patient restless, worried, anxious expression, violent headache; photo-

phobia; at times, drowsy. No symptoms of middle-ear disease. On lumbar puncture, the fluid came away under pressure and contained streptococci. Diagnosis of purulent leptomeningitis was made. Temperature 100° to 103°; pulse, 120 to 140. May 15: Patient comatose; muttering delirium; spastic contractions of muscles of neck and back; respirations short and rapid; pulse feeble and jerky; ten ccm. of anti-streptococcal serum administered. May 17: Developed paroxysms of cough with bronchial breathing over both lungs; joints became swollen, tense and white; second dose of serum administered. Patient recovered consciousness for a short time and complained of headache and photophobia, but soon relapsed into coma. May 18: Third dose of serum injected; abscess of right shoulder-joint opened by Dr. Bodine and a quart of pus evacuated. May 19: Dr. Bodine opened abscess in right hip, and one in left hip-joint, May 21.

The patient continued comatose with periods of muttering delirium; temperature ranging from 100° to 103°; pulse 140 to 160; respirations 30 to 40, until May 29, when she was seized with a violent paroxysm of cough, evacuated through the mouth half a pint of pus, and expired. An immediate examination of the mouth, pharynx, and fauces was made, to determine the source of the pus, with the conclusion that it was pulmonary.

A relative of this patient, working at the same trade, showed me an infected finger, and informed me that the girls working on the furs were often troubled with these fingers and sore throats.

*Case 2.* Mrs. N., aged 35, referred to me September 20. She had complained of sore throat for several days, but had had no previous throat trouble. Both tonsils were found inflamed and swollen; soft palate and uvula edematous; mucous membrane dark, bluish-red in color; I sprayed her throat with adrenalin and applied argyrol and gave aspirin internally. October 10: Again referred to me with a fully developed peri-tonsillar abscess on the right side. She had apparently recovered from the first attack, and had been free from symptoms for two weeks. The abscess was freely incised, and a quantity of pus evacuated. The following day, cervical glands became involved but did not suppurate. October 17: Against my advice, the patient was sent to Lakewood by her family physician, returning in three days with a recurrence of the peri-tonsillitis, which was again opened and drained. After two days, her physician resumed care of the case, but sent for me, November 1, as the patient wished me to be present while he aspirated the pleural cavity. A considerable quantity of pus was

withdrawn, and several days after she was removed to the hospital and two ribs resected. She remained in the hospital five weeks. After returning home, she gradually failed and died September 26. Autopsy showed septic pneumonia, suppurative pericarditis, and some residual pus in right pleural cavity.

*Case 3.* Louise F., schoolgirl, aged 10, seen first January 7, with a typical attack of follicular tonsillitis. Five days later I incised peri-tonsillar abscess. Temperature  $103^{\circ}$ ; pulse 140. The temperature ran a septic course for four days, the little patient being extremely ill,—complaining of pain in joints, and headache; slightly nauseated. Examination of the joints showed the knees swollen and tender, and a fluctuating mass over the right hip. This was incised and drained by Dr. F. C. Keller on January 11. Temperature fell to  $99.3^{\circ}$  and remained so for several days. On January 17, had chill; temperature rising to  $105^{\circ}$ ; had violent spells of coughing, and showed physical signs of pleurisy on that side. Three days later, intercostal drainage was established by Dr. Keller. The patient made an uneventful recovery. Two injections of anti-streptococcic serum were made in this case, no visible improvement resulting.

*Case 4.* Patrick G., plumber, aged 32, physical condition poor, evidently an alcoholic. He was treated for several days for an acute follicular tonsillitis and peri-tonsillar abscess, with apparent recovery. Some weeks subsequent to his discharge from treatment, the patient returned to ask my opinion as to the advisability of going to Denver, having been informed he had tuberculosis. He gave history of loss of appetite, cough, difficulty of breathing, and pain in side,—referring the onset of these symptoms to the time of seeming recovery from the tonsillitis. The throat-symptoms had now disappeared but physical signs of pleurisy with effusion were present. The patient was referred to Dr. Keller. Diagnosis of empyema was made, and ribs resected with complete recovery.

*Case 5.* Lillie C., aged 13; history of recurrent attacks of tonsillitis; seen by me October 8, suffering from an acute attack of tonsillitis, and suppurative peri-tonsillitis; complained of pain in muscles and joints. On October 12, an attack of acute articular rheumatism had fully developed, which was complicated several days later by pericarditis with effusion. The case ran to complete recovery in four weeks. The tonsils and adenoids were subsequently removed. The patient has since experienced no rheumatic or cardiac trouble.

*Case 6.* Ellen D., aged 10. She had had several attacks of tonsillitis. She had adenoids and hypertrophied tonsils, which parents refused to allow me to remove. At various times she had complained of slight rheumatic pains, usually after one of her tonsillar attacks. During an unusually severe and stubborn attack of tonsillitis, acute articular rheumatism developed in her left elbow and wrist, and rapidly involved all joints. She suffered excruciatingly for two weeks, when the joint-symptoms began to improve, the temperature fell, and she rested comparatively comfortably. Examination of her chest revealed the presence of pericardial friction sounds and bronchial râles. On the twenty-first day of her illness she experienced a violent chill and collapsed, dying in three days. Autopsy showed septic pneumonia, suppurative pericarditis, and endocarditis.

*Case 7.* Walter H., aged 8; no previous history of tonsillitis; large hypertrophied tonsils. He had been treated for ten days by the family physician, who stated that he had ineffectually incised the tonsil several times. On examination, a large tonsillar and peri-tonsillar abscess presented itself, bulging so as to practically close the throat. A free incision was made in the peri-tonsillar space, and the large, protruding, pus-filled tonsil removed with a Mackenzie tonsillotome. The temperature was 104°; pulse difficult to count; breathing labored; moist râles all over chest; heart's action tumultuous,—the sounds impossible to distinguish. The child died during the night, and autopsy was refused.

*Case 8.* Edna H., aged 8; no previous illness except a mild attack of tonsillitis; had adenoids and hypertrophied tonsils. Case of acute follicular tonsillitis which ran the usual course without local complications. Two weeks later began to complain of headache, slight nausea, and tired, drowsy feeling. This continued for several days without treatment, until she was suddenly seized with a convulsion of short duration, succeeded several hours after by another. Urine scanty; high color; small quantity of albumin; granular and hyaline casts; specific gravity 1010. Dr. Keller was associated with me in the treatment, which was the usual routine for acute nephritis. After a succession of convulsions, the patient fell into a uremic coma, which lasted one week. Urine scanty and upon being boiled became a solid mass of albumin in the tube. General edema and abdomen distended with fluid. Recovered from coma, but remained ill for several weeks, during which time the abdomen was tapped by Dr. Keller four times. Eventually recov-

ered, and when seen one year after, was in apparently good health, but with endocardial murmurs which had not been present before the nephritic attack.

The following cases of infectious angina are interesting, because of undoubted tonsillar origin, and the severity of the symptoms, both local and general.

*Case 1.* L. M., aged 50. When first seen at my clinic on a Monday, presented the objective symptoms of acute tonsillitis, with probable peri-tonsillar involvement. On the following Thursday, the peri-tonsillar tissues were phlegmonous; the left side of the soft palate and uvula edematous; the patient experiencing difficulty of articulation and deglutition. A deep incision was made in the phlegmonous tissues, but no abscess cavity found. The following day, the phlegmon had extended to the floor of the mouth, the entire soft palate, and the glosso-epiglottidian fossa. Several incisions were made, producing profuse hemorrhage and oozing of small quantities of streptococcic pus. That evening, when thought to be in better condition and resting quietly, she suddenly drew a deep inspiration and expired. Autopsy was refused.

*Case 2.* M. C., 25 years old, referred to my clinic April 26, suffering from acute tonsillitis. Three days later she again presented herself. On examination the soft tissues of the right side of the mouth, palate and fauces were found intensely inflamed and swollen, with involvement of the glands of the jaw and neck. Peri-tonsillar incision revealed no pus. Temperature 103°. She was kept in the hospital and referred to the general surgical service. The following day an incision was made in her neck over the sterno-cleidomastoid by Dr. Bainbridge and three days later over the angle of the jaw. A thick, bloody, grumous discharge followed both incisions. Dr. Bainbridge stated that the cutting into the tissue was like the feeling experienced on cutting into a frozen apple. The patient remained in the hospital six weeks, running a course of general sepsis. The wounds healed slowly, the seepage on the dressings being thin, muco-purulent and streptococcic.

*Case 3.* T. H., aged 36, clerk. He had been complaining of sore throat for several days, but without treatment. He had had no previous attacks. The symptoms depicted were those of peritonsillitis with involvement of the submaxillary gland. The peritonsillitis was not suppurative, as shown upon incision. He was referred to Dr. J. A. Bodine, who excised the submaxillary gland. For about one week his throat-symptoms remained quiescent, when

suddenly he had a chill, the temperature rose to 103°, and peri-ton-sillar abscess developed. This was freely incised, the pus being found to contain both staphylococci and streptococci. Four days later the phlegmonous inflammation had spread to the floor of the mouth, the epiglottis, and the membrane covering the alveolar process of the lower jaw,—prompt and rigorous measures alone preventing death. The affected parts were sprayed with cocaine and adrenalin, freely incised and frequent applications of ichthyl were made. After four weeks of general septicemia he made a good recovery.

73 West Forty-ninth Street.

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**A Rare Case of Lingual and Pharyngeal Sporotrichosis with Threatened Asphyxiation.** J. DUVERGER and A. BAIN, *Rev. hebd. de Laryngol. d'Otol. et de Rhinol.*, April 15, 1911.

This malady is at first insidious and of slow development, but may reach every point of the bucco-pharyngeal mucous membrane and even the larynx. It is characterized by ulcerations of varied depth, having a fetid odor suggesting papier-maché. The base of the ulcerations resembles papillomata and bleeds easily. The infiltration may be extensive producing edema of the tongue and pharynx. White spots are spread over the velum palati and pharynx, these probably being the first stages of future ulcerations. It is characteristic of sporotrichosis that the ulcerations are not painful and may even be curedtted without an anesthetic. There is frequently the absence of ganglionic involvement or of high fever.

Some cases, however, do not present this favorable form. One case is reported in which the ulcerations caused gangrene, with a fatal termination. In the case reported by the author, the patient was threatened with asphyxia from enormous swelling of the tongue. The case was treated by a solution of iodine locally and iodide of potash internally. The sporothrix of Buermann are found in the secretions.

SCHEPPEGRELL.

## SOME INDICATION AND CONTRA-INDICATIONS FOR REMOVAL OF THE FAUCIAL TONSILS.\*

BY JOSEPH B. GREENE, M. D., ASHEVILLE, N. C.

It is not my intention in the short time allotted to me in this symposium to discuss fully all the indications for the removal of the faucial tonsils, but to dwell particularly on the important indications which may be overlooked by the physician. Some of the indications I shall simply mention. Whatever I do say will refer to complete removal or tonsillectomy, and not tonsillotomy as practiced with the tonsillotome.

In discussing this subject it is not my purpose to condemn every tonsil to removal that one inspects between the pillars of the fauces, but to mention certain danger-signs frequently overlooked, which call for surgical intervention. The question may properly be asked how can one diagnosticate a diseased tonsil? In no case can we say with certainty that a tonsil is normal, but in a great majority of cases close scrutiny of the gland will reveal certain signs of disease. The diseased part of the tonsil is not on the superficial mucous membrane, but in the crypts which extend to the basement membrane of the gland. A safe rule to follow is that if there be symptoms attributable to diseased tonsils, the patient should have the benefit of their removal. Large tonsils which almost articulate in the median line of the pharynx should, of course, be removed for mechanical reasons, on account of their interference with deglutition, and breathing, particularly, during relaxation incident to sleep. However, the large tonsil is not the tonsil to be most severely condemned, but rather the submerged gland barely visible between the pillars. In these cases, we note in the first place close adhesion to the pillars in front and behind, due to previous attacks of tonsillitis. There is evidence of increase of fibrous tissue in the tonsil, and a corresponding diminution of lymphoid structure. The crypts are often wide-open, and may present at their open mouths caseous material. There is frequently a fold, plica triangularis, covering the mouths of the crypts; thus preventing drainage. It is this kind of tonsil which is prone to cause peri-tonsillar abscess (quinsy) to which I shall refer later. The patient will often

\*Read before the Meeting of the County Society, Asheville, N. C., February 6, 1911.

give a history of spitting up foul-smelling particles, consisting of food, detritus, desquamating epithelia, and pathogenic organisms. Such patients may be subject to frequent attacks of sore throat of varying severity. However, they may be victims of chronic tonsillitis, without symptoms of sore throat.

The large tonsil may also be diseased, but not necessarily so, unless simple hyperplasia in a child be considered pathological. It is this class of tonsils, simple hyperplastic enlargement, which often gives only symptoms of mechanical obstruction to breathing and swallowing, and interference with proper speech, which may be benefited by excision with a tonsillotome, but even in these cases how much better would it be for the patient to rid him of future disability and danger from an infected gland. It has been proved that children who have been relieved of their faucial tonsils are less liable to contract both diphtheria and scarlet fever, and, contracting these diseases, the course of the disease is probably a milder one. This partial immunity, so to speak, could not be expected to hold good where the faucial tonsils were excised with a tonsillotome. Though the constant relation between the tonsil with the apex of the lung through the cervical lymphatics has not been fully accepted, yet the danger of tubercular infection through the lymphatics of the throat is great. This brings me naturally again to preventive treatment, which, to my mind, is the highest field of medical practice. It is my conviction that every child in a house infected with tuberculosis should have his tonsils inspected, and on the slightest suspicion, should have them removed. The same rule should apply to the pharyngeal tonsil (adenoid).

The frequent association of rheumatic fever with tonsillitis suggests the faucial tonsils as a frequent point of entrance of the organism. Osler's recent "Practice" classes rheumatic fever as an infectious disease, and whether it is due to the organism of Poyton and Paine, which they have isolated from the throat and joints, and which, injected into the blood of rabbits produces polyarthritis and endocarditis, or some other species of infection, the association of the two conditions is too frequent to be ignored. Schichold<sup>2</sup> says articular rheumatism is frequently caused by the absorption of toxins from pus-pockets in the tonsils. Even complications such as endocarditis, if recent, yielded to the treatment, that is tonsilectomy. Curshmann<sup>3</sup> supports Schichold's statement; Guerich<sup>4</sup> claims that practically all cases of articular rheumatism get their infection through the tonsil. He permanently cured ninety-eight of one hundred and twenty-five cases by tonsilectomy. McRae,<sup>5</sup>

of the Johns Hopkins Hospital suggests the radical removal of the tonsils at the beginning of every attack of severe rheumatic fever. To operate on a tonsil when it is actually inflamed is not the ideal time for removal on account of the increased inflammatory reaction following operation, and likewise the possible greater danger of hemorrhage, but McRae evidently considers this danger of operation small compared with the danger of heart complication incident to an attack of rheumatic fever. This radical treatment I am not prepared to advocate, though the high source of the suggestion is sufficient not to pass it over without consideration. It is in the subacute arthritis that removal of the faucial tonsils has given me the greatest satisfaction. To illustrate this I shall relate briefly a typical case of this kind.

Patient, H. G., male, aged 16, referred to me in July, 1909, at Birmingham, Ala., by Drs. McLester and Douglass. Patient complained of pain and swelling of ankles, wrists, elbows and thumbs. It began three years previously with acute swelling of right ankle. Since that time his condition had grown better at times, but never entirely well. The physicians who referred the patient to me told me of a severe lesion of the mitral valve, and advised against a general anesthetic. The crypts of both tonsils were found to contain caseous material, and other appearances of chronic tonsillitis. Immediate operation was done with cocaine-adrenalin injection, almost without pain. Ten days after operation the throat condition was normal, and since that time, till April, 1910, when I saw his father there had been no return of the joint trouble, but the valvular lesion will, of course, be a heavy handicap to him the remainder of his life. What a pity his tonsillar condition was not discovered prior to his attack of rheumatism with endocarditis, now nearly four years ago! As the organism or toxin selects the joints and endocardium to produce its characteristic inflammation, so can the pericardium and pleura be the points of selection.

The German authorities have laid great stress on the nephritis resulting from the diseased tonsil. As far back as 1881 Von Leyden called attention to the occurrence of nephritis following simple angina.

John Lovett Morse of Harvard in *Archives of Pediatrics*, (1904), thinks that it is reasonable to consider tonsillitis a cause of nephritis on account of the fact that it is due to bacterial infection, and that being complicated by cervical adenitis, peri-tonsillar abscess, or acute inflammation of the middle-ear, it should lead to in-

flammation of the kidneys, as do other diseases due to micro-organisms. An additional reason he says is the fact that it is caused by streptococci, the usual cause of acute nephritis in scarlet fever. In the eight months prior to his report in 1904, Morse had seen four cases of tonsillitis resulting in acute nephritis, in all of which, it was possible to exclude scarlet fever as the cause.

H. W. Loeb,<sup>7</sup> reports four cases of nephritis occurring with, or shortly following acute tonsillitis. It is worthy of note that all the cases were either in physicians, or in the family of physicians. In each instance diphtheria and scarlet fever were excluded. In each instance, the nephritis was of the hemorrhagic non-scarletinal type; there was neither fever nor edema. In each instance also the tonsillar inflammation was mild in character, and the course unusually slow. The nephritis followed the tonsillar inflammation. This differs from the nephritis of scarletina and diphtheria, in which the physical signs as well as the symptoms of the nephritis are concomitant with the height of the disease. It is very evident that many cases of nephritis in association with tonsillitis are overlooked from a failure to make a careful urinary examination, as is done in scarletina and diphtheria.

Tuberculosis of the tonsils may be divided, as Dr. Levy of Denver suggests, into two types: (1) the manifest, or clinical form. This is practically always associated with tuberculosis of the larynx, and of the lungs. In this form there is nothing to be gained by removing the tonsils, as there are other foci of infection.

(2) The latent form, where it is impossible to make a positive diagnosis prior to operation. In these cases there is nothing specific in the appearance of the tonsils prior to operation to suggest tuberculosis. An examination of the tonsillar tissue after operation shows the characteristic appearance of tubercular tissue. It is this form in which the greatest benefit is to be derived from operation and is the type which is characterized by the tubercular glands of neck.

Cervical adenitis whether simple or tubercular calls for removal of the faucial tonsils. This should precede all other treatment. How often do general surgeons experience a recurrence of cervical adenitis even after all suspected glands have been carefully enucleated! How often do we see cervical adenitis clear up on removing the source of infection, the tonsils! I do not wish to imply that all cases of cervical adenitis are due to infected tonsils but excluding such condition as eczema, carious teeth, stomatitis, etc., we can say that probably all of the cases get their infection through

the lymphatic ring of the pharynx, that is, the pharyngeal tonsil, (adenoid) the faecal tonsils or the lingual tonsil. It seems likely that *all* cases of tubercular glands of the neck get their infection from the lymphatics of the throat. As the lingual tonsil is not found in early childhood, this avenue of infection can be disregarded.

Stomach disturbances, such as catarrhal gastritis, and loss of appetite particularly in the mornings, are not an unusual accompaniment of diseased tonsils. This results from swallowing caseous and purulent material with mucous arising from the tonsils. One can readily see how useless stomachics and stomach washings would be in such cases, so far as permanent benefit is concerned.

Finally I come to peritonsillar abscess, a condition which, as every physician knows, is prone to occur. Not only on account of severe pain incident to an attack lasting usually from seven to ten days unless relieved sooner by a bistoury, but also because of the danger to life, this condition demands entire removal of the tonsil as soon as the inflammation has subsided after the first attack.

In purulent discharge from the middle-ear which does not dry up after the usual treatment the faecal tonsils should be inspected and if advisable removed.

Defective hearing, due to tubal catarrh, should have the faecal tonsils looked after and removed if necessary. This applies particularly to the pharyngeal tonsil or adenoid.

**Recurrent tonsillitis:** Patients who suffer from frequent attacks of tonsillitis should be freed from further disability by having their tonsils removed. These are the cases, however, where judgment is required in advising removal, depending upon the frequency and severity of the attacks, and likewise the complications, if there be any. The disability following tonsillectomy is usually no worse than an attack of tonsillitis, and the fever and other constitutional symptoms far less.

Contra indications for the removal of the faecal tonsils are in my judgment few;

1. **Age**—We hesitate to remove the faecal tonsils in the very young and in the aged for the reason that at the extremes of life operations are not well borne. In the old we have the increased danger of hemorrhage, both on account of the atheromatous arteries, and the high blood-pressure.<sup>1</sup> However, in an infant suffering from recurring rheumatic fever, associated with tonsillitis, I would urge the tonsils removal after the acute inflammation has

subsided for the danger of operation is no way comparable to the danger of valvular endocarditis. In the aged suffering from recurring peritonissilar abscess (quinsy) I would still advise tonsil removal for obvious reasons.

2. Severe constitutional diseases, whether it be advanced tuberculosis, heart disease, diabetes, or renal disease, or what not, should not be given the added burden of a tonsil operation. Pulmonary tuberculosis is in itself no bar to operation on the tonsil. The danger of getting a localized tuberculosis at the wound site seems theoretical rather than practical. Tonsillar tissue, being lymphoid in character, is far more likely to become infected, than a clean granulating wound in the pharynx.

The improvement in general health after removal of a badly diseased tonsil from one suffering with pulmonary tuberculosis is often sufficient compensation for the discomfort of a tonsil removal. Joseph Beck of Chicago suggests that the opsonic index may thereby be raised.

*Summary:* To summarize will say that: (1) All tonsils which give symptoms localized in the gland or adjacent tissue, such as quinsy, cervical adenitis, suppurative otitis media, should have their tonsils enucleated in their entirety. (2) Cases with obscure stomach symptoms should direct the attention of the attending physician to the tonsils, and if necessary have this point of danger removed. (3) Cases of nephritis, pleuritis, endocarditis, pericarditis, and infectious arthritis should have their tonsils inspected as to the probability of their being the point of entrance of the infecting organism or their toxins, and finding no other cause of the condition, should have their tonsils removed.

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## SEPTIC INFECTIONS OF THE MOUTH AND THROAT.\*

BY M. D. LEDERMAN, M. D., NEW YORK.

Acute septic infection of the throat is a serious and often a fatal disease. Its sudden appearance in seemingly healthy individuals, and the rapid development of distressing and alarming symptoms is rather characteristic. A few years ago, in speaking upon this subject, Sir Felix Semon expressed the opinion that all severe infections involving the mouth, tongue, fauces, pharynx, larynx, and neck, show the same clinical picture and should be classified as acute septic inflammations.

The anatomical name of the affection merely describes the part primarily attacked. Bacteriologically, these inflammations are caused by a number of micro-organisms, the most prominent being the streptococcus pyogenes. Other pathogenic bacteria, i. e., staphylococcus, pneumococcus, and pyocyaneus, may give rise to similar clinical conditions. In Sir Felix Semon's opinion, there is no specific pus microbe, and each of the pyogenic cocci proper is capable of causing all forms of inflammation, apart from the purulent variety.

The question as to the tissue first involved is quite accidental, and the character of the disease depends upon the quantity and virulence of the attacking organism. The pathological arrangement of the faucial tonsil, with its easily penetrated and exposed epithelial surface, offers a ready entrance for malign bacteria.

Many of these severe infections of the throat start as acute follicular tonsillitis. If the attacking germ finds an entrance through some injury of the lingual tonsil, a glossitis results, with edema of the neighboring tissue. When the epiglottis is primarily involved (as happened in the case reported later on) this structure shows the more active phenomena, while the adjacent parts suffer secondarily and so cause alarming symptoms.

In a case of Dr. T. H. Morgan (to whom I am indebted for this history) symptoms of dyspnea and dysphagia demanded a prompt external operation, which was performed by Dr. J. A. Bodine. A severe glossitis with invasion of the submaxillary gland and infiltration of the sublingual tissue appeared in forty-eight hours. The patient's temperature at the onset of this infection was  $101^{\circ}$ ,

\*Read before the Meeting of the New York Polyclinic Medical Society, January, 1911.

but soon reached  $103^{\circ}$ . In this instance an incision was made in the median line below the chin and pus was found back of the submaxillary gland. For twelve hours after the operation the temperature was  $104^{\circ}$ , and then gradually subsided. Drainage was continued for a few days, and the patient recovered without further complications. A tooth had been extracted a week or ten days previous to the appearance of the septic symptoms, and this lacerated area was doubtless the portal for the infecting bacteria. No laryngeal observation was made. Another instance of oral infection with a somewhat similar history, in which the causative factor proved to be a salivary calculus, came under my care some years ago. The history of the patient is briefly as follows.\*

Mr. E. C., 18 years of age, presented himself at the office, complaining of difficulty in swallowing and inability to open the mouth to any extent. Deglutition was very painful, and no solid food had been taken for four days. He had a similar attack three years ago, and Dr. J. Shears, who kindly referred the patient to me, had removed at that time a small stone from the sublingual region. The symptoms then were not severe, and had not caused much annoyance. No cutting was necessary to liberate the calculus during his first attack.

The patient's external appearance resembled the clinical picture of an advanced quinsy. His mouth was slightly open, saliva was oozing from between his lips, the tongue was raised above the edges of the lower teeth, and protruded. There was a brawny swelling extending from the angle of the jaw, left side, to the submental region. The submaxillary and sublingual glands were swollen and very tender to pressure. Inside the mouth, the sublingual tissues were decidedly swollen on the left side, and painful to the touch. Examination was difficult, owing to the patient's inability, on account of pain, to open the mouth. Pus was seen in the opening of the papilla, through which Wharton's duct empties. A slender probe was introduced into this orifice, and having passed a distance of an inch, its progress was arrested by some hard substance. On removing the probe, some pus flowed from the puncta. The temperature at the time was  $102.4^{\circ}$  F.; pulse, 110.

Under cocaine anesthesia and aseptic precautions, an incision was made into the sublingual tissues, about an inch in length, starting alongside of the papilla and directed posteriorly, on the left side. The cut was dilated with a dull retractor, and the probe was again employed to locate the foreign body. Not being able to grasp it

\*The Laryngoscope, May, 1904.

with the forceps, a dull wire aural curette was used and the calculus was dislodged after some little manipulation. As soon as the obstruction came away, about two drachms of pus drained from the wound. It was interesting to observe, that pressure over the submaxillary and sublingual glands increased the quantity of pus, showing that both glands were involved in the suppurative process.

Peroxide of hydrogen was applied to the cavity, and after the parts had been cleansed, a drain of nosophen gauze was introduced. On the following day the temperature was down to normal, and the patient felt decidedly improved. Pus continued to drain from the wound for three days, and the same treatment was carried out. On the fourth day, pressure over the sub-maxillary gland caused a clear fluid (salivary secretion) to flow from the opening under the tongue. The external swelling persisted for a week, though no annoyance was experienced after the fourth day. The wound healed nicely under an antiseptic mouth wash, and no fistula resulted.

This calculus, which was three-quarters of an inch in length and one-quarter in thickness, had evidently occluded Wharton's duct, and had obliterated, for the time being, Bartholine's duct at its entrance into the former channel. The ducts from the sublingual gland are numerous, and a few come together and form Bartholine's duct which empties its contents into Wharton's duct. It was at this junction that the calculus had formed, as both glands showed symptoms of retention.

The young man casually informed me that his father suffered from calcareous deposits, which were passed at times in the urine.

I recall\* a severe infection of the sublingual and cervical tissues (*angina Ludovici*) following an acute purulent otitis media in a young woman, 19 years of age. On the second day of the aural disturbance, the patient complained of pain in the throat; difficulty in swallowing was also experienced. On the third day the ear-symptoms had improved, but the sublingual tissues were edematous. No disease of the pharynx or larynx existed, nor was any dental cause found to account for the local infection. The temperature was  $101^{\circ}$ , pulse 110. On the fourth day the young woman presented a serious picture. The left side of the neck was decidedly prominent, very brawny to the touch, and exquisitely tender on pressure. The chain of anterior cervical lymphatics was readily felt. No fluctuation was detected. The facial expression was one of great suffering; the tongue was pushed over the lower

\*Medical Record, October 8, 1898.

teeth, out of the mouth; deglutition was impossible. After some difficulty, a laryngeal picture was obtained, but nothing of moment was seen in this region. Incisions were made through the swollen structures along the left side of the tongue, and pus was found. Pressure over the swelling in the neck increased the flow of pus and assisted drainage. Suppuration continued for a few days, and under general tonic treatment, a good result followed, although convalescence was somewhat protracted.

In another case of throat infection<sup>†</sup> due to a traumatic factor, edema of the larynx followed a wound of the lower pharynx caused by swallowing a chicken-bone. The serious symptoms appeared ten days after the exciting cause. A female in the middle period of life had been in good health. The swallowing of the chicken-bone had been forgotten until painful deglutition set in. Nothing abnormal was seen in the pharynx by the attending physician, and no elevation of temperature was recorded. There was some tumefaction at the left side of the neck, tender to pressure, but localized. This swelling had increased in twenty-four hours. A marked edema of the lingual surface of the epiglottis was seen. This extended from the left side of the pharynx and involved the ary-epiglottic fold on the same side, encroaching upon the superior opening of the larynx. The anterior third of the left cord was visible and was not involved. The right side of the larynx was free. Nothing was found in the urine to account for the condition. On the following day the edema had extended further into the laryngeal cavity. Under cocaine anesthesia, a detailed examination was carried out and an area more prominent than the surrounding tissue was found in the lower pharynx. Incisions were made into this site, and a few drops of pus came away. The wounds were further dilated, and under daily drainage of the incisions a prompt recovery followed. The temperature never rose higher than a degree above normal during the illness of twelve days. No bacteriological examination was obtained.

The clinical history of this case points to a rather mild form of infection, as the process had existed for a few days before indicative symptoms presented themselves. In the histories of the following patients, both of whom I saw within a period of six months in consultation with Dr. Cyril Barnert (to whom I am indebted for the following notes), the sudden onset of the attack with its rapid extension is strikingly characteristic of the serious aspect of the affection.

<sup>†</sup>The Laryngoscope, May, 1909.

Mrs. S., aged 25, a bride of four weeks. Family history negative as to tuberculosis, malignant, or specific disease. Had measles and chicken-pox in infancy. Seven months ago underwent operation for suppurative appendicitis, with uneventful recovery in three weeks. Never suffered from throat trouble of any kind previous to present illness.

Patient having retired in good health one evening, was aroused at seven o'clock in the morning by a sharp pain in the throat. This pain persisted throughout the day, being much aggravated by deglutition. A sense of fullness in the throat was complained of, together with pain in the right ear. At the same time the patient suffered from severe headache, pains in the back, and limbs, chilliness, nausea, and vomiting. The temperature at 3 p. m. was 104°, pulse 90. Examination of the pharynx showed nothing abnormal. About twelve hours after the onset of the trouble the laryngoscope disclosed an edema of the epiglottis, involving it in its entirety and partially hiding the laryngeal structures, which, however, were still normal in appearance. The temperature was now 102.8°, pulse 120.

The larynx was kept sprayed with cocaine and adrenalin solutions, and the epiglottis was painted with 50 per cent argyrol in boric-acid solution. The air of the room was kept bland and moist by steam saturated with vapor of phenol, oil of pine-needles, and compound tincture of benzoin. A saline cathartic was administered and was effectual. Examination of the urine showed no albumin nor sugar. Cracked ice was given by mouth and an ice-cap applied externally. Nevertheless, the edema gradually increased during the night, and about 11 p. m., a local spot of redness made its appearance on the lingual face of the epiglottis near the base on the right side. This area of induration increased and was accompanied by an edema of the adjacent pharyngeal wall and the base of the tongue, particularly on the right side.

At 8 a. m., twenty-four hours after the onset of the symptoms, edema of the arytero-epiglottic folds was seen. The patient spoke in a guttural tone and with some difficulty. Respiration required some effort. The "lump in the throat" as she expressed it, felt larger and deglutition was decidedly difficult and very painful. The local condition, having increased so rapidly, now assumed a serious aspect. The epiglottis was three times its natural size and was encroaching considerably upon the laryngeal opening. It was at this time that Dr. Lederman was asked to see the patient, and he advised immediate incision of the infiltrated area at the base of the epiglottis. Under local anesthesia with 10 per cent cocaine solu-

tion he made an incision into the swollen tissues of the epiglottis on its lingual surface to the right side with a curved knife. At a depth of about half an inch from the surface the knife entered an abscess cavity, and about half a drachm of fetid pus escaped. A number of incisions were also made into the edematous epiglottis.

Following the evacuation of the pus, there was an arrest of progress of the local condition for several hours, when a re-accumulation of pus was accompanied by an extension of the swelling to the adjacent tissues, particularly at the base of the tongue and of the arytenoids. On re-opening and stretching the incision with a blunt instrument, and with the use of two leeches at the side of the neck, a subsidence of the secondary edema of the arytenoid, pharyngeal, and glottic tissues occurred within two hours. The temperature returned to normal, and the patient was conscious of a distinct relief from pain except on swallowing, which symptom persisted until after the removal of a good-sized slough. The epiglottis resumed its normal size in a few days.

The patient was discharged on the eighth day with no change in outline or functional defect of the epiglottis, and nothing to show for her alarming experience except a shallow depression at the site of the original incision. A smear of pus examined under the microscope showed chains of streptococci and a few encapsulated diplococci, probably the pneumococcus.

In connection with the preceding report, the following instance of a similar throat lesion of a milder type, occurring in a sister of the former patient, is of more than passing interest. Both of these young women were operated upon for acute appendicitis some time previous to their laryngeal attacks. In the case of Mrs. K., the inflammatory lesion did not reach the suppurative stage, and subsided slowly under local medication and purgation.

Mrs. K., age, 24 years; married. Had the ordinary diseases of childhood; no special predisposition to throat inflammations. Operated for acute appendicitis two years ago; uneventful recovery. The family history was negative as to tuberculosis, malignant, or specific disease.

Following a mild attack of influenza with pharyngitis patient was conscious of a feeling of obstruction in the throat and complained of pain on swallowing. The temperature was slightly elevated,—100.5°—but there were no marked symptoms of a general nature. On examination, the pharynx showed a catarrhal condition, but the laryngoscope disclosed an edema of the left arytenoid, about the size of a grape. This swelling very slowly spread to

the inter-arytenoid tissues and to the other arytenoid, and at its height involved the false cords, but not enough to embarrass respiration. In the meantime, the larynx was kept sprayed with adrenalin solution, 1-3000, and cocaine 10 per cent was applied. The patient was given ice constantly by mouth, and an ice-bag was applied to the neck. A liberal dose of Pluto water was given to induce catharsis. The patient was kept in bed in a semi-recumbent position. Leeches were applied to the neck. This treatment alone sufficed to bring about a cure, without surgical intervention.

The edema very slowly disappeared, beginning in the false cords, then in the right arytenoid, the arytenoid interspace and finally in the left arytenoid. The whole process covered a period of five days. At no time was there any indication of suppuration, nor was anything abnormal found in the urine.

In this type of throat-infection with accompanying edema, and elevation of temperature, it is advisable to freely incise suspicious areas of the neighboring tissues, in the hope of reaching the primarily infected region. The question of serum injection must be considered in the treatment of these cases. If we are able to make a bacteriological diagnosis early, we may possibly obtain an anti-toxin of the same micro-organism. Autogenous anti-toxin would undoubtedly be the ideal serum, but unfortunately, the repaid extension of the local infiltration, together with the general depression due to the septic process, will not permit of such delay; consequently we must employ some form of anti-streptococcus serum. These infections are usually due to some variety of the streptococcus pyogenes, frequently associated with the pneumococcus; therefore a reliable polyvalent preparation of the anti-streptococcus serum should be used. Prompt local treatment must be diligently applied, and if edema advances, intubation, and probably tracheotomy, will have to be performed. General supportive measures are indicated, and when marked interference with deglutition exists, rectal feeding must be resorted to.

Our prognosis in these cases should always be guarded, for in spite of conscientious efforts, the patient will at times succumb to the profound sepsis.

58 East Seventy-Fifth Street.

REPORT OF OVER FOUR HUNDRED EAR, NOSE AND  
THROAT PATIENTS TREATED AT THE UNIVERSITY  
HOSPITAL IN MANILA.

BY HENRY WINSOR, M. D., PHILADELPHIA.

So little of the work done along these lines in Manila has been published, and the material is so unusual, that I have been asked to report the patients whom I treated in my clinic in St. Luke's Dispensary (connected with the University Hospital) in Manila during the year ending July 1, 1909. There were in all 416 such patients, of which 83 were aural, 223 were mouth, teeth or jaw cases (196 of the latter being dental), 50 were nasal, 10 pharyngeal, 10 palatine, 16 tonsillar, 20 laryngeal, and 4 were examples of accessory sinus disease. Few were admitted to the hospital because of the lack of room. The treatment had for the most part to be performed rapidly as there were many surgical dispensary cases waiting to be treated. Many of them, a summary of which is appended, had been neglected for months or years before coming to the hospital.

In one family there were two examples of accessory ear-cartilages. One child, aged six years, had five small accessory ear-cartilages arranged in front of, and superimposed upon the normal auricle of one side; also six such cartilages on the auricle of the opposite side. In the other child there were three small accessory cartilages near the right ear and one near the left ear. One of these patients was photographed by Dr. Bean, then Associate Professor of Anatomy in the Philippine Medical School. The cartilages were removed and the specimens are now in the University Hospital in Manila. They consisted mainly of cartilage covered with skin. One bore a slight resemblance to the foldings of a normal external ear.

Of the fifty-three cases of suppurative otitis media, five had aural polypi, which were removed. One child, aged five years, had suffered from a discharging ear for five months. When the aural polyp was removed, the posterior set of the superficial cervical glands were found to be enlarged, which, after removal, proved to be both necrotic and tubercular. This child recovered and the case is of special interest as it shows the local infective nature of glandular tuberculosis.

Two instances of occlusion of the anterior nares were observed. Both were in infants and followed ulceration from small-pox. The anterior nares were both completely closed by healthy skin. Cruciform incisions were made where the nares should open, the opening dilated with hemostats, and rubber drainage-tubes inserted, covered with vaseline. Although they were treated for several weeks, and the nares dilated from time to time, the tubes cleansed and re-inserted, the occlusion recurred again and again.

**GANGOSA.** There were several cases which were diagnosed as gangosa. This disease seems to be an affection peculiar to the Tropics. According to O. J. Minck and N. T. McLean, Past Assistant Surgeons of the U. S. Navy, and others\* "Gangosa is the name employed by the Spaniards in the Ladrone and Caroline Islands, to describe a disease characterized by a destructive ulceration, usually beginning on the soft palate, pillars or uvula, and extending by continuity to the hard palate and nasal cavity, larynx and even to the face. Active ulceration is followed after a variable period by cicatrization or chronic ulceration. Mutilation always results. Constitutional symptoms are either slight or absent. Synonym is rhino-pharyngitis mutilans."

Of seven cases with oval apertures in the hard palate, so diagnosed, one presented no other signs of syphilis, tuberculosis, leprosy, or yaws, and may be accepted as a case of true gangosa. In the latter instance, the walls of the cleft in the hard palate were separated by an oval space with a transverse diameter of one inch, and a longitudinal extent of an inch and a quarter. The edges of the cleft were completely covered by healthy mucosa which was nowhere raw or unhealed; no granulation was observed; the posterior third of the septum was gone, and the inferior turbinated bones were plainly visible through the oval aperture in the roof of the mouth. The other six cases presented evidences of syphilis, such as Hutchinson's teeth, iritis, periostitis, rickets, or old ulcerations of the cartilaginous and bony septum, which conditions warranted a suspicion of syphilis and made the diagnosis of gangosa a doubtful and difficult one. However, none of these were active, none had granulating surfaces, and the disease had been arrested.

One woman about 35 years old, presented a loss of substance of most of the hard palate; the entire uvula was gone, most of the soft palate had disappeared, a large part of the vomer was absent

\*Jour. A. M. A., Oct. 13, 1906; Internat. Dermat., Vol. 2, 1908, (Minck), p. 571; U. S. N. Med. Bull., Vol. 2, 1908, Gieger, p. 1-14; Philippino Jour. of Sci., Vol. 387-401; 1 pl. (Musgrave and Marshall). Also A. Castellani and A. J. Chalmers, in a Manual of Tropical Medicine, for 1910, p. 916-918.

and part of the bones surrounding the left lacrimo-nasal duct had been absorbed by the disease. A slate pencil could be passed from the left eye-socket into the left half of the nose, and from thence into the mouth through the opening in the hard palate. Two-thirds of the hard palate was absent, the uvula was absent and the median four-fifths of the soft palate had disappeared. A splendid view of the inferior turbinates could be obtained through the large semi-oval opening in the roof of the mouth. There were no granulating areas in this case; the mucosa of the roof of the mouth had united with that of the floor of the nose at the margins of the cleft. There was a left-sided ulcerative keratitis and iritis probably due to the dryness of that eye from the too rapid escape of tears through and into the mouth. A history of abortions and the scar of a healed leg ulcer, made the differential diagnosis from syphilitic ulcerations of the nose and palate a difficult matter.

Ulceration and perforation of the hard palate is not a rare sequel of syphilis. While serving as chief resident in St. Paul's Hospital, I saw and treated a woman for Dr. P. K. Gilman, associate professor of surgery to the Philippine Medical School of the U. S. Government. This woman was a Japanese prostitute. She had a small perforation of the hard palate, with inflammation (redness, swelling and granulation) at its margins, an ulcer involving both the bony and cartilaginous septum of the nose, and a sub-acute osteo-periostitis of the left tibia. This case differed from the cases seen in St. Luke's Dispensary, in that it was undoubtedly syphilitic, and because of inflammatory reactions which were absent in the St. Luke's cases. She improved under local antiseptic sprays, applications of argyrol and other silver solutions, and with protiodide pills. The St. Luke's cases were not altered by treatment, and all had persisted for years. None of these were examples of congenital cleft palate.

**ACCESSORY SINUS DISEASE.** There were four cases of accessory sinusitis. The first case, Severino Lorenzo, 35 years old, a native, had been complaining for five months of pain in the right cheek and nose. His cheek was tender, the right side of the hard palate was swollen and tender, the soft palate was thicker on the affected side, catheterization of the normal openings from nose to antrum was impossible on account of a large middle turbinate.

The patient was admitted to the University Hospital, his anterior nares sprayed with permanganate solution; he was etherized, and with Dr. Saleeby's assistance, the anterior part of the right middle turbinate was removed, but the antrum could not be catheterized.

With a small drill, an opening was made, from the outer wall of the nose, just above its floor, into the right antrum. The cheek was then dissected free from the mucous membrane, and a trephine opening was made above the first molar tooth, into the antrum. Thick, grey pus escaped. A rubber drainage tube was passed from the nose into the antrum and thence to the mouth above the tooth. This was secured by safety-pins attached to either end of the tube. Daily syringing with warm permanganate solution caused much pain. The tube was removed about a week later. The openings healed rapidly. After one month of treatment, the man was again etherized; an opening, one-third of an inch in diameter, was made from nose to antrum. The cheek was opened below, and to the outer side of the infra-orbital foramen. The vessels and nerves were pushed upwards, and the canine fossa trephined. The antrum was curetted, old fibrinous clots and muco-pus being removed; after irrigating with warm permanganate solution, a drainage tube was tied loosely to a curved probe and drawn through the antrum from the nose to the cheek, fastened with safety-pins, and a permanganate dressing applied. The tube was syringed daily with permanganate for two weeks, when the tube was removed, and the openings allowed to heal, which occurred two weeks after the removal of the tube. One year later the patient was seen again; he complained of numbness of the gum above the bicuspid teeth, and could not detect a pin prick there, showing that the curetttement of the antrum had destroyed the anterior and posterior-superior dental branches of the superior maxillary nerve, which run in the wall of the antrum. This result was hoped for, because his pain had indicated a beginning tic douloureux. Two years after the operation he had so little pain that he might be considered cured. The scar was about half an inch long and invisible at fifteen feet.

The second case, Miguel Bantista, six years old, a native, came to the dispensary with a discharging sinus below his right eye. Scar tissue near the sinus had retracted his right lower eyelid down on his cheek, so that the lid could not be closed. A probe could be readily passed through this sinus into the antrum; these symptoms had persisted five months. After cleansing his nose, eye, sinus and mouth, and after anesthetization with ether, the nose was drilled as in the previous case, the second molar tooth was removed, its socket drilled, and a drainage tube passed through the antrum from the nose to the mouth. A transverse incision was made through the tarsal cartilages of his lower eyelid, and the latter bolstered up with pledges of cotton. Daily syringing with boric acid and with permanganate solutions and treatments with

argyrol failed to improve this case. Two oculists connected with the hospital declined to treat his eyelid until his sinus was healed. A corneal ulcer began to develop, and it was decided to operate again to save the eye. The nasal opening was enlarged, the canine fossa drilled through the cheek into the antrum, as in the previous case, a larger incision was made in the lower eyelid, which was sutured loosely to the forehead. Frequent dressings prevented infection of his eye and allowed the escape of tears. Recovery was uneventful. When last seen, two months after the second operation, there remained but little eversion of the lower eyelid; the corneal ulcer had disappeared, the eyelid could be closed; the discharging sinus had closed, and the various openings into his antrum were healed; pain had ceased.

The third case was in a Chinaman. He complained for a few weeks of pain in his nose and right eye-brow, with tenderness under palpation and percussion over his eyebrow. After cleansing and cocainizing his nose, a curved cannula was passed from the middle meatus of his nose part-way through the infundibulum; some pus escaped. The sound was passed on alternate days for two weeks, and permanganate solutions injected. His symptoms relieved, he disappeared for one month, returning with pain in his right cheek. A small polyp was detected in the right side of his nose, removal of which neither relieved his pain, nor permitted catheterization of his antrum. This being an acute case it was readily handled in the Dispensary; the antrum was drilled through the nose, the cheek and lip dissected free from the gum, and the canine fossa drilled; a rubber drainage tube was passed and the cavity syringed with permanganate solution; recovery occurred in a few weeks, and was uneventful.

**NASAL POLYPI.** There were twelve examples of this condition. As there was no Wilde's snare in working order, they were removed by combined torsion with a hemostat, and curettement with the finger nail. One of them, Mr. S., is worthy of special mention: Mateo S., a native of Pandacan, who came to St. Luke's Dispensary, December 15, 1908, complaining of dyspnea from obstruction of his nose and throat. Examination with a nasal speculum revealed a pale, yellow-gray tumor blocking both nares, also visible from the mouth in the naso-pharynx. After spraying the nose and mouth with permanganate solution, and applying cocaine, pledges of cotton of various sizes were prepared in order to plug the nose and prevent hemorrhage. After opening the mouth, the tumor was grasped in the naso-pharynx with two long hemostats; torsion was

applied to the handles with the right hand, while curettement of the naso-pharynx was employed with the index and middle fingers of the left hand in the right and left posterior nares respectively; the tumor was thus removed by enucleation, torsion and extension. Its removal occupied about two minutes. After spraying with hydrogen peroxide to sterilize as well as to control the bleeding, the two fingers of the left hand were placed in the naso-pharynx, and the pledges of cotton were then packed against them from the front of the nose by means of dissecting forceps, until both nasal fossa were completely plugged. He was given weak permanganate solution to use in case he neglected to return to the dispensary. He removed the cotton too soon and used the solution with resulting hemorrhage, for which he was admitted to the hospital, and the nose re-packed as before. Two days later the cotton was removed, the nose cleansed and re-packed; he was then discharged from the hospital; after a few days' treatment he left the dispensary presumably recovered. The polyp to-day, after two years shrinking in formaline, measures three and a half by one and three-quarters by one and a quarter inches. (See figures 1 and 2). It is, of course, longer lying on the table than when compressed in the nasal fossa and naso-pharynx. It showed cartilage and bloody granulations on the superior surface of its posterior extremity where it was attached in the naso-pharynx. The anterior ends were casts of the inferior meatuses of the two nasal fossae; the color was pale yellow-gray; the consistency moderate.

Of seven cases of tonsillitis, one is noteworthy. The patient was a deaf-mute. Her teacher, Miss Rice, U. S. G., informed me that she had been ill for one week with headache, fever and sore throat. A smear made from a centrifuge specimen obtained by Quincke's puncture, third lumbar interspace, from spinal fluid, showed lymphocytes and a few minute cocci; the fluid was colorless. The right tonsil was badly infected with a suppurative tonsillitis. The patient, a Filipino, aged about 16 years, died the morning after admission to the University Hospital. The autopsy by Dr. Vernon L. Andrews, Associate Professor of Pathology in the Philippine Medical School, U. S. G., showed otitis media suppurativa and suppurating tonsillitis of the right side with a small right-sided purulent meningitis of the temporal lobe of the brain. The report did not show whether the infection had traveled from the tonsil through the Eustachian tube to the ear and brain, or whether the tonsillar infection was secondary to otitis media.

Only a few hypertrophied tonsils were removed. One patient, Benito Baron, aged 16 years, a Filipino, attached to the Protestant-

Episcopal Mission, had had a previous partial removal of the right tonsil. As the tonsillotome was in poor working condition, the remainder of the tonsil was cut away with scissors under ether anesthesia and tubercular glands were removed from the neck. Some necrotic teeth were also removed. Although he was much weakened by chronic dry beri-beri, he recovered completely after a few months' rest in the hill country.

Of the 106 cases of necrotic teeth extracted, five gave rise to Ludwig's angina. None showed streptococci, virulent specimens

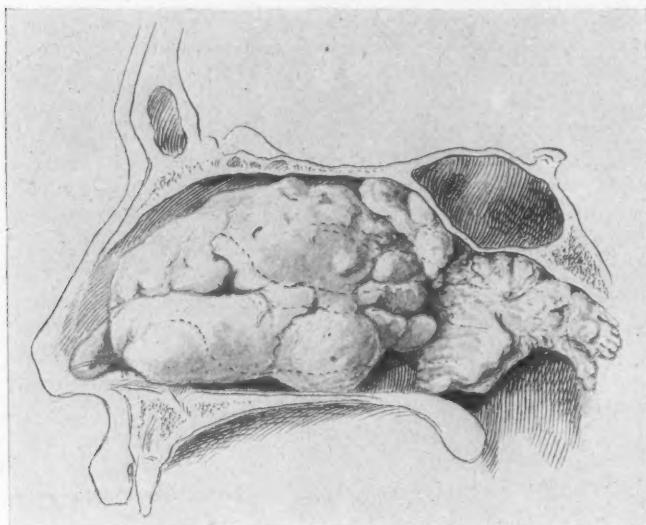


Figure 1. Lateral view of a polypoid growth which was attached to the vault of the naso-pharynx and occluded the nares. The position of the turbinated bones is indicated by dotted lines. The patient was an adult male Filipino. The specimen was placed in a dry skull before the drawings were made in order to give the best idea of the size and position.

of which are said to be rare in Manila, despite the fact that cellulitis and erysipelas occur. In six thousand new cases treated during this year in St. Luke's Dispensary, erysipelas was diagnosed three times, and cellulitis nine times, so that virulent streptococci probably occur in Manila, the bacteriologist to the contrary notwithstanding. Of the five cases of Ludwig's angina, all appeared to result from necrotic teeth. Although the necrotic teeth were removed, the abscesses opened wide, swabbed with carbolic acid, alcohol, permanganate, peroxide, argyrol, etc., when the sloughs

came away, none of these foul abscesses showed any tendency to heal, and all five patients died in a few days. A brief summary of this service follows.

Summary of aural, nasal, buccal, pharyngeal and laryngeal diseases seen in St. Luke's Dispensary, Manila, P. I., during the year ending July 1st, 1909:

Diseases of the ear, 83; accessory ear cartilages (multiple ear-cartilages), 2; dermatitis of external auditory canal, 5; foreign bodies in ex-

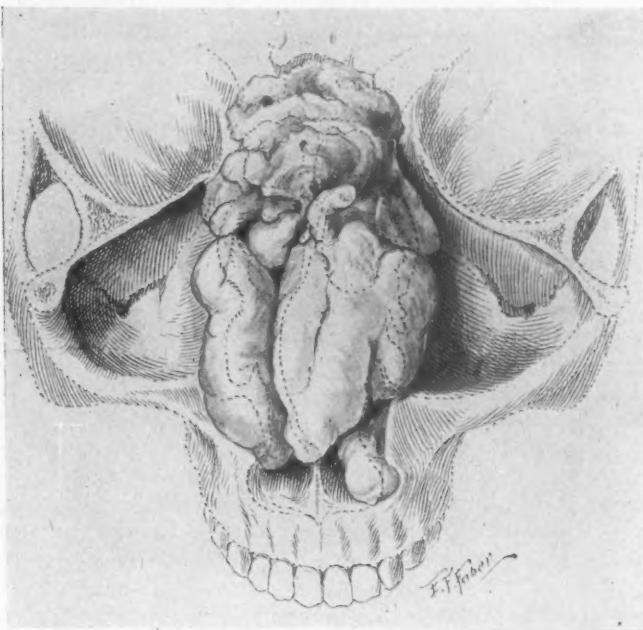


Figure 2. A view of this nasal polyp as seen from above. Again the turbinate bones are outlined by dotted lines and the nasal septum as well. The actual size of this growth was: from before backward three and a half inches (or 9 cm.), by one and a half inches, from above downward (or 3.8 cm.), and from side to side, in its greatest diameter one and three-quarters inches (or 4.5 cm.).

ternal auditory canal, 2; (fly, 1; kernel of Indian corn, 1); furuncle of external canal, 4; impacted cerumen, 6; mastoid abscess, 3; chronic suppurative otitis media, 53; aural polypi, 5; tumors (sebaceous cyst), 2; Menieres symptom complex, 1.

Diseases of the mouth, teeth, jaw, etc., 223; of the jaw, 12; gingivitis, 7; necrosis of the jaw, 3; pyorrhea alveolaris, 2. Of the mouth:—stomatitis, 4; thrush, 1; ulcer of the tongue, (fraenum) 2. Of the teeth:—caries, 196.

Tumors:—retention cyst of the sublingual 4. (All appeared to result from carious teeth, formed foul abscesses and died.)

Diseases of nose, throat, etc.:—nose, 45; occlusion of the nares from smallpox, 2; rhinitis, simple unclassified, 12; acute, 5; atrophic, 4; hypertrophy of turbinates, 3; rhinophyma, 1; rhinoscleroma, 1; septal ulcers, simple unclassified, 2; luetic, 2; deviated septum, 1; polypi, nasal, 12.

Pharynx, 10; pharyngitis, unclassified simple, 7; pharyngitis, granular, 1; pharyngitis, acute, 2.

Palate, hard, 8; fibroma of, 1; gangosa, 1; gummatous (luetic ulceration of), 6.

Palate, soft:—luetic ulcers of, 2.

Tonsils, 16; hypertrophied, 8; abscess of, 1; tonsillitis, follicular, 3; tonsillitis, simple, 3; enlarged lingual tonsil, 1.

Larynx, 20; laryngitis, acute, 10; laryngitis, tubercular with phthisis, 9; foreign body in, 1.

Sinusitis, 4; frontal, purulent, right side, 1; maxillary, purulent, right, 1; maxillary, purulent, with sinus through malar bone emptying pus on cheek, right side, 1; maxillary, purulent, with polyp in right maxillary sinus, 1.

319 South Sixteenth Street.

**Virulence of Diphtheria Bacilli.** B. L. ARMS and E. M. WADE,  
*Jour. A. M. A.*, March 18, 1910.

The authors report the results of tests of the virulence of diphtheria bacilli. In general they find the organism persisting after a clinical case of diphtheria, virulent, but the non-clinical carriers usually harbor non-virulent organisms. The conclusion previously expressed that in case of diphtheria outbreaks cultural tests of all contacts and isolation of those showing positive cultures is a duty owed to the community, is confirmed. The results of the present study are summed up as follows: "1. Clinical diphtheria is caused by virulent diphtheria bacilli. 2. As a rule, following clinical diphtheria, the organisms retain their virulence as long as they persist. 3. As a rule, virulent and avirulent bacilli are not found in the same case, but, as these cases do occur, several strains should be tested before they are reported non-virulent. 4. In diphtheria outbreaks a large percentage of the 'carriers' harbor virulent organisms, although such carriers may develop no symptoms whatever. 5. Cultures should be taken from all contacts before terminating quarantine in all cases of diphtheria."—*Ex.*

## TREATMENT OF OZENA BY THE SUB-MUCOUS INJECTION OF PARAFFIN INTO THE NASAL SEPTUM, WITH A REVIEW OF OTHER METHODS.\*

BY HARRY KAHN, M. D., CHICAGO.

The term "ozena" has been so firmly engrafted into our medical terminology, that it will be with difficulty uprooted. At a meeting of the American Laryngological Society, it was suggested that the term "atrophic rhinitis" be substituted. This action does not seem to have met with the approval of the medical profession, so the old term still stands for the characteristic symptom-complex.

The term "ozena," as I take it, is a combination of symptoms both subjective and objective. The subjective are, anosmia, a feeling of insufficient air-space in the nose, (due to the accluding crusts), a disinclination for mental application, lack of ability to concentrate, and the withdrawal from social intercourse; making almost a recluse of some patients.

The objective symptoms are, pus, crusts, fetor, atrophy of the turbinals, and a secondary dryness of the pharynx, laryngitis, bronchitis, and even sometimes gastritis, and changes in the mucus membranes of the nose from a columnar secreting surface, to a dry stratified, epithelial one.

A condition that produces such profound changes and as much distress as this, is worthy of our best efforts to combat; and any measure that offers even a palliation must be considered.

The etiology of the disease is not on a sound basis. Many theories have been advanced, but none seemed to have solved the riddle. No specific organism has, as yet, been definitely proven as the causative agent.

The following classification may be used as a working basis:

1. Extra-nasal—suppurating adenoids. (Hajek).
2. (a) Sinusitis; (b) non-sinusal mucus membrane infection.

We now come to the main thesis, the treatment, which may constitute:

- (1) Cleansing and deodorizing; (2) surgical; (3) injection of paraffin.

I. The cleansing and deodorizing is the oldest method of treatment and consists of first ridding the nose of crusts, either by

Read before the meeting of the South Side Branch of the Chicago Medical Society, December 18, 1910.

\*Archiv fuer Laryngologie und Rhinologie, Vol. 18, page 548.

displacing them with a forceps, or by the application of a Gottstein tampon. That is, to pack the nose firmly with many small cotton plegets allowing the pack to remain for a time, (one-half to two hours) then removing. The crusts are loosened by the pus, that is secreted, then they may be removed painlessly and without hemorrhage, which cannot usually be avoided by simply pulling them out with the forceps. After the nose is cleansed, a 1 per cent salicylic ointment, or an ointment consisting of menthol gr. 1, oil eucalyptus M. 20, and vaseline 1 ounce, is applied by the operator, and afterwards by the patient himself, he soon learning the use of an applicator armed with cotton.

Many other applications, sprays and snuffs have been advised—1-10000 potassium permanganate, hydrogen peroxide, 1 per cent ichthylol, 10 to 50 per cent argyrol, 3 to 5 per cent protargol, 1 per cent oil of mustard, nitrate of silver in various dilutions, zinc chloride solutions, citric acid 50 per cent in sugar of milk, etc., ad infinitum.

All of these drugs and methods usually give relief during the time of their use, but when discontinued, the patient relapses into his original condition, discouraged and disgusted.

2. The surgical treatment consists of an attempt to open and drain the affected sinuses. Many times it is impossible even by the most painstaking examination to determine which of the sinuses are diseased; and, if accurately diagnosed, the operation does not always stop the pus-formation. Again, no sinus suppuration can be found, even after repeated examination. The mucus membrane furnishes the base of the process.

It is now generally acknowledged that the cleansing and deodorizing methods, as well as the ordinary surgical procedures are inadequate, since neither produce, except in occasional cases, lasting and permanent results. Therefore we are compelled to look to other means for the relief of these patients.

3. The method, about to be described, gives lasting and permanent relief from the crusts, odor, the secondary pharyngitis, laryngitis, etc.

Zaufal pointed out that the crusts were formed by the rapid evaporation of the moisture due to the large volume of air passing over the slowly secreted pus. The odor is due to the decomposition in and under the crusts.

The problem presented, then, is first, either to stop the secretion of pus, and thus prevent the crusts, odor, etc. This, we have, so far not been able to accomplish by any method known at this

time, or secondly, to prevent the formation of crusts, or to facilitate their removal quickly and easily. This, we have been able to do, by reducing the size of the nasal cavity, thereby reducing the volume of inflowing air. This phenomena may be noted in ozena-patients whose nasal septa are deviated, or whose septa carry a large spur or crest in the side of the nose that is very large and patulous, where we also find crusts and odor, while on the narrower side, only fluid pus, or very small crusts that may easily be blown out. To reduce the size of the nasal cavities, we use hard paraffin. We have the choice of two locations for injection. First, the turbinals and preferably the lower, have been injected. This method has given some fair results, but it is open to some very serious objections. It is very painful, only a small amount of paraffin can be injected at one time, hence numerous sittings; and there is more or less danger connected with the procedure. Brain symptoms, blindness, and thrombosis of the cavernous sinus have followed in the wake of an injection.

The place of election, as suggested by Wilimensky,\* and the one I have for the last few years practiced, is under the mucus membrane of the septum. The object has been to produce large artificial spurs or crests between the base of the inferior and lower border of the middle turbinates. The method of procedure adopted is as follows:

The nose is cleared of crusts and pus as well as possible for a few hours before the operation, by douching or spraying with any mild antiseptic solution. To the septum, is then applied a solution of 10 per cent of cocaine, hydrochloride and 1-2000 adrenalin to the point of complete analgesia. As for the septum operation, Beck's self-retaining speculum is then inserted. A small incision is then made in the septal mucus membrane down to the cartilage, then the dissection of the mucus membrane and perichondrium to which it is attached, is begun with Hajek's sharp separator, and when the perichondrium is well loosened, the blunt separator of Hajek or Freer is used to complete the dissection which is carried well back to the bony portion of the septum.

The dissection is usually not difficult, but care should be exercised to get under the perichondrium at the beginning, and to remember that we are dealing with a very thin mucus membrane. Now, a blunt tubular tip is attached to a filled Onodi paraffin syringe, inserted into the pocket, and the paraffin (melting at about 40° C), slowly injected until a very large projection is noted. When enough has been introduced, the tip is slowly withdrawn, care being taken

that the force has been spent, and the paraffin thread broken. These precautions are necessary to prevent any paraffin being imprisoned between the lips of the incision, which will prevent healing, and allow the expulsion of the paraffin. A No. 0 catgut is used to make the one stitch necessary to close. The patient is allowed to go with the caution not to blow his nose for twelve to eighteen hours. In a few days, to two or three weeks, it will be found that there are no more, or only very few small crusts that may be easily blown out. The foul odor has disappeared, and the other secondary symptoms will soon disappear. Both sides may be done at one sitting, or at intervals of a few days.

No complications secondary to this procedure have ever come to my notice. In two of my cases, the paraffin was expelled after a couple of months. Still, a good result was obtained.

The one difficulty of the method lies in the atrophic condition of the septal mucous membrane. Occasionally one finds that it is impossible to dissect the membrane from the cartilage, in which case, a sharp-pointed needle must be used and inserted under the septal perichondrium, and the paraffin injected hypodermically, as suggested by Faith. Care should be exercised that the needle does not penetrate the septum and that you do not button-hole the mucus membrane.

In conclusion, I believe I am justified in saying that the submucus injection of paraffin into the septum of the nose offers a safe, satisfactory and easy method for the treatment of the very distressing symptom-complex "ozena."

31 North State Street.

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**Recurring Mastoiditis.** S. V. W. JANTZEN, *Ugeskr. f. Leger*,  
Jan. 26, 1911.

Jantzen tabulates the details of twenty-one cases of recurring mastoiditis in which a second operation was required; the total mastoid operations at Mygind's clinic during the period 1905 to date was two hundred and twenty-five. Only one of the patients with recurrence was an adult. The interval ranged from a few months to five years. He discusses the causes for recurrence and the means to avoid and treat it, reviewing considerable literature on the subject.—*Ex.*

## SPECIAL EDITORIAL DEPARTMENT

### THE DEAF

Their Education—Improvement of Conditions—  
Responsibilities and Participation of the Profession

EDITED BY

JOHN DUTTON WRIGHT, M. A.

DIRECTOR OF THE WRIGHT ORAL SCHOOL FOR THE DEAF  
NEW YORK CTY

The aim of this department of THE LARYNGOSCOPE will be to bring to the notice of its readers from month to month, facts that may be helpful to physician and patient in dealing with the life-problems involved in deafness. Suggestions from readers will be gladly received and all questions answered to the best of our ability.

The committee appointed by the otological section of the American Medical Association in 1909, and re-appointed in 1910, to carry out the series of resolutions then adopted, for the purpose of aiding the work of ameliorating the condition of the deaf by education, have chosen to take up first that section of the resolutions which suggested increased instruction on the subject in the medical schools. They have addressed the following letter to the deans of all the medical schools of the United States and Canada, accompanied by the syllabus which we reprint in this department of THE LARYNGOSCOPE.

New York City, May 24, 1911.

Dear Doctor: At the annual meeting of the American Medical Association in 1909, a committee was appointed by the otological section, to draft resolutions and devise means for arousing increased interest among the members of the medical profession in the cause of ameliorating the condition of deaf children by education, and to report at the next meeting. The report of the committee as made at the meeting in St. Louis in 1910, and its accompanying resolutions were adopted and the committee continued by the section for the purpose of endeavoring to carry out the intent of the resolutions. One of these reads as follows: "That in all medical schools more instruction be provided during the course on the means available for ameliorating the condition of deaf children by education."

The committee feels confident that the schools will gladly adopt this suggestion, if such instruction is not already included in the course. They realize, however, that the lecturers upon whom this duty would devolve, are very busy men, and might find it a hardship to spend the time necessary to gather the material for such a lecture. The committee has, therefore, prepared a syllabus containing the essential facts that such a lecture might set forth, and takes pleasure in enclosing this

booklet for reference should the lecturer choose to avail himself of it.

The committee hopes that the arrangement of the course will permit the lecture to be given during the graduating year, and that the students will be urged to make such notes for preservation as may enable them to intelligently advise cases that may from time to time come under their observation, since it is to the physician that the parents of the afflicted children first go for help, advice and guidance.

The committee would greatly appreciate the courtesy of a reply stating whether such a lecture is already a part of the course, and if not, that it will hereafter be included.

Cordially yours,

JOHN L. ADAMS, Chairman,  
58 East Fifty-first Street, New York City,  
B. R. SHURLY,  
DUNBAR ROY,  
MAX A. GOLDSTEIN,

Committee of the Otological Section of the American Medical Association.

The committee appointed by the American Laryngological, Rhinological and Otological Society have addressed a similar letter to the deans for the same purpose, and Dr. Hudson-Makuen of that committee is considering the preparation also of a syllabus. The activity of these committees should certainly result in an increased interest and knowledge among the medical profession of the educational phase of the treatment of the deaf.

At the last annual meeting of the American Laryngological, Rhinological and Otological Society, in Atlantic City, in June, two valuable papers were read bearing upon phases of this problem. One by the editor of THE LARYNGOSCOPE, Dr. Max A. Goldstein, on "The Practical Value of Lip-Reading," and the other by Dr. Hudson-Makuen on "The Medico-Educational Problem of the Deaf Child."

Dr. Goldstein, in the course of his paper, called attention to the need of more teachers of lip-reading throughout the country to whom physicians could safely send their patients for instruction. He made a very practical suggestion for meeting this need. "Let each otologist of our organization," he said, "select from his own community several intelligent young men or women, who, in his judgment may be qualified; urge them to go to one of the training-schools for teachers of lip-reading, and pledge them to return to his community to take up this work."

The editor of this department of THE LARYNGOSCOPE was invited to open the discussion of Dr. Goldstein's and Dr. Makuen's papers, and in the course of his remarks took occasion to urge upon the members, Dr. Goldstein's very practical idea, and to add to it a further suggestion. More than twenty years of service along this line has convinced him that no one place of training for teachers of lip-reading, possesses at present all that is of value in the work.

Such a center should exist, and the American Laryngological, Rhinological and Otological Society might easily be instrumental in establishing it. Let them choose some bright, wide-awake, young physician, just out of medical school, who is physically and mentally adapted to the work of teaching lip-reading, and induce him to go to the fountain-heads of information on this subject, both in America and in Europe, with the understanding that when he has gathered to himself all that is worthy of adoption and practice, he shall settle in some centrally located city and become the nucleus of a training-school exclusively devoted to the training of teachers of lip-reading.

This school would be under the auspices and patronage of the Society, and the members would naturally reserve to themselves the privilege of nominating candidates for the training, each of whom would pay a reasonable sum for the course. From such a center there would gradually result a body of trained teachers in whom the medical profession could repose confidence, and to whom they could easily send an adequate number of pupils.

The Society adopted a motion directing the existing committee, consisting of Drs. Dench, Makuen and Birkett, to consider the feasibility of such a plan, and report at some early sectional meeting.

#### SYLLABUS ON THE EDUCATION OF THE DEAF.

Distributed among the Medical Schools of the United States and Canada by the Otological Section of the American Medical Association, through a committee consisting of Dr. John L. Adams, Chairman, 28 East Fifty-first St., New York City; Dr. B. R. Shurly, Detroit, Michigan; Dr. Dunbar Roy, Atlanta, Georgia; Dr. M. A. Goldstein, St. Louis, Missouri.

#### Topical Analysis of Syllabus—Educational Treatment of the Deaf.

- I a. Historical Review: 1. Europe. 2. America. b. Present Status: 1. Europe. 2. America.
- II. Comparison of Manual and Oral Methods: 1. Results of Manual Method. 2. Results of Oral Method. 3. Results of "Combined" Method.
4. Failure of "Combined" Method from a speech standpoint.
- III. Classification of Cases: 1. Congenitally, totally deaf: 1. Of normal intellect. 2. Of subnormal intellect. 2. Adventitiously totally deaf: 1. Of normal intellect. 2. Of subnormal intellect. 3. Profoundly, but not totally deaf. 1. Of normal intellect. 2. Of subnormal intellect.
4. The Deaf-Blind. 1. Of normal intellect. 2. Of subnormal intellect.
5. The Hard of Hearing in the public schools.
- IV Educational needs of each class.
- V. Sources of information open to those interested.

#### SYLLABUS ON THE EDUCATION OF THE DEAF.

The systematic education of the deaf began with the establishment of a little school in Paris by the Abbe de l'Epée in 1755, which he supported with his small personal income. Previous to that time, during the sixteenth and seventeenth centuries in Spain and England there had been occasional cases where the deaf sons of daughters of nobles, or persons

of great wealth, had been educated and even taught to speak and read the lips by clever and devoted men, but the good Abbe de l' Epee was the first to offer the boon of education to the poor and rich alike. He, however, adopted a method of instruction by gestural signs and manual alphabet. About the same time Braidwood in Edinburgh (1760), and later in London, and Heinicke in Dresden (1778), were teaching by oral methods, but they, unlike the French Abbe, made a secret of their methods, and taught only the rich.

The first school in the United States was opened in 1817 at Hartford, Connecticut, and Thomas H. Gallaudet was its Principal, he having been sent the year before to Europe to train himself for his work. Mr. Gallaudet had sought the necessary instruction in Edinburgh and in London, but had been inhospitably received. In Paris, however, at the institution founded by the Abbe de l'Epee, and then conducted by the Abbe Sicard, his reception was most cordial. Therefore it was the sign language and the manual method which he brought back with him, and established in the first school for the deaf in this country. For half a century the education of the deaf in the United States was carried on exclusively by the silent methods imported from France by Mr. Gallaudet.

But in the meantime oral methods were coming to predominate in Europe, and in 1867, two small oral schools were opened in this country, one in New York City, and one in Northampton, Massachusetts. By oral schools is meant schools in which no manual form of communication, either gestural signs or finger alphabet, is taught or used by teachers or pupils in or out of the school room. All instruction or communication is spoken, except that writing is employed as it is in any ordinary school for hearing pupils. Gradually the teaching of speech and lip reading to the deaf has made its way in the schools of this country, until more or less of this work is done in every school.

We have seen that at the very start there was a wide divergence in the matter of methods. In Europe, however, the oral method has come to be nearly universal, while the United States is the stronghold of manualism. The last international report of schools for the deaf was issued in 1901. The following table will show the status of oral and manual methods in Europe at that time and in the United States and Canada in 1910.

	No. Taught in					Per cents
	No. of Schools	Oral Schools	Total Pupils	Pure Oral Schools		
Austria Hungary ....	38	33	2339	1947		84%
Belgium .....	12	11	1265	1206		95%
France .....	71	62	4098	3785		92%
Germany .....	99	99	6497	6497		100%
Great Britain .....	82	60	4222	2110		52%
Italy .....	47	38	2519	2044		82%
Norway .....	5	5	309	309		100%
Holland .....	3	3	473	473		100%
Russia .....	33	20	1719	949		56%
Spain .....	10	3	462	172		37%
Sweden .....	9	2	726	131		18%
Switzerland .....	14	14	650	650		100%
Totals .....	423	350	25279	20273	Average	80%
1910						
United States .....	145	82	12332	2809		22%
Canada .....	7	2	832	220		26%
Totals .....	575	434	38443	23302		42.66%

There are many schools in the United States, and some in Europe, that call themselves "Combined." That is they do some work in speech and lip-reading, and many of them have some classes in which all instruction is oral. But in many of the class rooms, and in outside communication, signs and the finger alphabet are taught, used and permitted. But ex-

perience has clearly shown that the best results in making speech and lip-reading a practical, working means of communication, cannot be obtained under the conditions existing in these "Combined" Schools. The manual method of communication is easier of acquisition for the child, and spoken language does not become his thought vernacular; he thinks in manual forms and expresses himself silently by choice. In the "Combined" Schools the manual "atmosphere" is all pervasive, and even coercive, for the child cannot avoid it. Therefore, the most satisfactory oral work cannot be done under "combined" conditions.

There is, probably, only one way in which the most satisfactory oral work possible can be done in a school in which there must, for any reason, be manual classes, and that is to make two schools of it; both under the same management, but the oral and manual classes having separate class rooms or different hours, and separate living quarters, and never coming in contact with each other at any time during the day. The largest school for the deaf in the world, the Pennsylvania Institution, in Philadelphia, has in this way been changed from a manual to a purely oral school, but the process occupied more than twenty-five years. The beginning was made by separating the school into two parts, a small oral department and a large manual, the pupils in the two departments never associating with each other in work or in play. Little by little, as the results of the oral work proved themselves satisfactory, the size of the manual department was decreased and the oral enlarged, until there are now no manual classes, and all communication in and out of the class room, in shop work and recreation, is spoken. Dr. A. L. E. Crouter, the Superintendent, in his annual report for 1909-1910 writes as follows: "In the Intellectual Department, instruction has, in the main, been conducted along the same lines as in previous years, the only noteworthy changes being the increased attention paid to lip-reading, and the entire absence of all forms of Manual Methods. These changes are believed to have proven helpful in the work. Oral Methods alone are now pursued in the instruction of all our pupils, and they are found quite adequate to their best advancement. In saying this, we do not claim to be able to make orators or public speakers of our pupils, but we do claim to be able to give them a good general education, and in doing so, to train their powers of speech and lip-reading to the extent of enabling them to communicate freely with their relatives and close friends, and to express their thoughts in fairly correct English on all topics of general interest. Except in a comparatively few cases more than this may not wisely be claimed for any method. Any method of instruction that will give the average deaf child a fair command of his native tongue, a fair acquaintance with the subjects that constitute a fair English education, and the power to speak intelligibly and to read the speech of others, is a good method, and any method that falls short of this, by whatever name known, is not a good method. We have dropped Manual Methods because we have found them unnecessary, and because we believe they interfere with the best progress of our pupils in the acquisition of speech and lip-reading and in all regular branches of study."

Thus once and for all, in the most conservative and practical way, has the country been shown how it may, if it wishes, gradually abandon the older and less desirable method for that which is more in keeping with modern ideas of education. The feasibility and desirability of this change having been demonstrated beyond question, without hurry and without prejudice, purely as a matter of indisputable fact, the same result can now be obtained in any other school in a period of not more than eight years. All that is necessary is the willingness on the part of the citizens, expressed by legislative action, to defray the slightly greater expense, and the placing in charge of a competent and experienced man or woman. Eventually this will be done, but not until a considerable body of public opinion is created by informing the people of the advantages possible to their deaf children, at present open to those in some states, but denied to those of others less enlightened. A great step toward this end will be accomplished if education can ever

be removed from the sphere of politics, and appointments made on a basis of educational efficiency and not political service.

An examination of the very careful statistics that are issued each year both by the "American Annals of the Deaf" and by the "American Association to Promote the Teaching of Speech to the Deaf," shows that in addition to the "22% (2809) pupils, taught in 1910, in pure oral schools, 38% (4753) of the pupils in combined schools are put down as 'taught wholly or chiefly by the oral method.'" Thus on the face of the returns it would appear that some 60% of the pupils in United States schools are taught by oral methods, which is not so far behind the 80% in European schools. The advocates of the oral method have, therefore, made sufficient impression upon the authorities of the "combined" schools to lead them now to try to give 38% of their pupils the benefits of that method that began in this country half a century later than the manual method.

But the 60% is deceptive for the reason, given above, that it is impossible to have the true oral spirit among the pupils, (to say nothing of the teachers), under the mixed or "combined" conditions. In fact this apparent growth of the oral method has been in some degree a hindrance to true oral progress, paradoxical as that may seem. For the sending out into life of these thousands of deaf young people who are supposed to have been orally educated, but who, owing to their familiarity with manual means of communication, have never learned to think in spoken forms and to depend upon them for their real working means of intercourse with those around them, and have, therefore, found their oral equipment insufficient for the purposes of life, has resulted in making them bitter against what they mistakenly believe to be oralism, and in turn has caused those with whom they associate to look upon such instruction as unsuccessful and futile.

The existence of this large and yearly increasing number of deaf persons partially taught by oral methods is, in a measure, a hindrance to the growth of the best oralism. It would be better for the deaf if each of the "combined" schools could be made into two separate schools, a manual and an oral school, under the same or separate management, but segregating the manually taught from the orally taught throughout the entire period of school life. Such a procedure is probably the only one by which the conditions can be secured that are necessary for the best possible results.

For educational purposes deaf children and young people should be divided into five general classes, and every physician should be familiar with the necessities and possibilities of each class. Each of these five general classes should in turn be divided into two classes, those of normal intellect, and those of subnormal intellect. The placing of deaf children of subnormal intellect in classes with deaf children of normal intellect should not be tolerated any more than it would be in the case of hearing children.

Class I. The totally and congenitally deaf, and those adventitiously deaf before three years of age: (a.) Of normal intellect; (b.) Of subnormal intellect.

Class II. The adventitiously deaf after three years of age: (a.) Of normal intellect; (b.) Of subnormal intellect.

Class III. The profoundly, but not totally deaf: (a.) Of normal intellect; (b.) Of subnormal intellect.

Class IV. The blind deaf: (a.) Of normal intellect; (b.) Of subnormal intellect.

Class V. Somewhat hard of hearing pupils in public schools for the hearing.

Those in Class I will be dumb as well as deaf unless they are given special instruction in speaking, and this instruction should be systematically begun between four and five years of age in the case of the otherwise normal child. The subnormal child may wait a little longer. Parents and friends can do much to prepare the little one for this sys-

tematic instruction, and later in this syllabus sources of information on this subject will be enumerated. These children should be treated as hearing children, so far as instruction in manual communication is concerned. That is to say, they should not be taught the manual alphabet or gestural signs, and the spoken word should be taught as quickly as possible to take the place of the child's natural descriptive and indicative gestures. The human race has for thousands of years acquired its spoken form of communication between the years of two and eight, and the immense aid of inherited tendency is strongest during that period, and all possible advantage should be taken of this fact.

The deaf child beginning at four or five years of age can be given in any school for the deaf in the world a good "grammar school" education in the three R's and in History, Geography, and Industrial training. In addition to this he can, in any of the good Oral Schools, be given a degree of proficiency in speaking and understanding the speech of those with whom he is thrown in frequent intercourse, to make him entirely independent of any form of manual communication. This cannot be done in any so-called "Combined School." It is to be hoped that the states will gradually recognize the fact that a good oral school can accomplish all that a good "Combined" school can do, and in addition to this a very considerable and very desirable excess of result that is clear gain.

In the case of deaf children of Class II, those adventitiously deaf after three years of age, the most essential thing for the physician to know is that extremely prompt measures must be taken to prevent the loss of the already acquired speech. The absolute necessity for immediate action cannot be too strongly impressed upon the parents or guardians of the child. Extraordinary efforts should be made to induce the child to talk as much as possible. If the child has learned to read before hearing is lost he should be encouraged to read aloud a great deal. The greatest care should also be taken to lead him to always watch the lips of people, and his friends should accustom themselves to being sure that his eyes are directed to their lips before they speak to him. They should also speak a little more deliberately in addressing him for the first year, but carefully avoid exaggerated and unnatural mouthing of words. Perfectly normal speech should always be used, a little more deliberate, and only when the child's eyes are focused on the lips of the speaker. While special instruction may not be required at once, it is very desirable that the parents should seek the advice and guidance of some experienced oral teacher of the deaf the moment they know that hearing has been impaired. If proper methods are employed with sufficient promptness, the transition from comprehending speech through the ear, to reading it by the eye may be made so gradually and simply, and the natural speech of the child may be so well preserved that there will be but little interruption of educational or social activities. Without this prompt attention, however, the child of eight, or less, will become a deaf mute if hearing is lost, and have to be treated in accordance with those of Class I. Unfortunately there are many such at present in schools for the deaf throughout the country.

The children of the third group, while too deaf to attend the ordinary public and private schools, yet retain some remnants of hearing which can be utilized in teaching them to modulate their voices, and in comprehending language spoken very loudly near the ear, or through some electrical or mechanical aid to the hearing. This class is probably much larger than is usually supposed, since a degree of sound perception sufficient to permit of educational training to usefulness, may yet be too small to be considered of practical value by either the possessor or his friends.

There are probably many pupils in the schools for the deaf of the world with a sufficient power of sound perception to be taught to discriminate vowel sounds, and therefore words, spoken loudly near the ear, who have never so comprehended language because they have never been taught to do so. The schools cannot be blamed for this, because such work must be almost entirely individual, and the appropriations do not

permit of employing the necessary teachers. It would be, however, a valuable mental training, for when the ear avenue to the brain is wholly closed, there must be an area which can never be developed through a vicarious sense, and any stimulation that can reach the brain adds to the completeness of its development. To acquire a hearing vocabulary, by means of an imperfect auditory apparatus, is somewhat akin to acquiring a new language over a telephone that is not working very well. Whether the actual perception of sound is increased by the training is not always certain, but the effect is the same, owing to the increased ability to interpret the meaning of the imperfect sounds perceived. Urbantschitsch of Vienna has done much work on this line and written of it. The reason why this remnant of hearing does not develop spontaneously, is because there is not enough of it to serve any useful purpose under the ordinary conditions of conversational intercourse. Therefore the disconnected and meaningless sounds which from time to time reach the child's brain are simply ignored. We are all familiar with this failure to hear sounds when attention is not given. The clock strikes the hour, but we do not notice it. The impression was made upon the hearing mechanism, and transmitted to the brain, but the mind was otherwise occupied. We ourselves ignore hundreds of sounds daily so completely that to all intents and purposes we are deaf to them. We really hear with our minds through the medium of the ear and its associated parts, and when the mind fails to perform its function we are as truly deaf as though the mechanism of the ear were destroyed. The result of this auricular training with profoundly deaf children who still retain some power of sound perception is to lead them gradually to notice sounds which have always reached them, but had been ignored as meaningless and without value or interest. When these sounds acquire a significance they at once become interesting, and attention is paid to them, and we say how much better they hear. Whereas the actual sound perception may not have altered, but they have learned to associate ideas with sounds which they could have heard before, but ignored as meaningless.

The Fourth Class, those both blind and deaf, require a somewhat different treatment from those who are only deaf, and also even more individual attention. Manual means of communication must be very largely employed in their education, though they can be, and should be, taught to read the lips of speakers with the aid of their fingers, and be taught to speak themselves even to those who spell manually to them.

In general each child requires an individual teacher. The first case of this kind that was rescued from the terrible oblivion of the double misfortune was Laura Bridgman, who was given a meager education, and a little industrial training, by the great educator of the blind, Dr. Samuel Howe. The most famous case is probably that of Miss Helen Keller, who, through the devoted labor of Miss Annie Sullivan, now Mrs. Macy, and later of other teachers, has become a scholarly, cultured woman of rare intellectual powers and sweetness of character. She has a far more extensive education and a wider knowledge than the average young woman college graduate. She herself uses only speech in her communication with those around her, though others usually spell manually to her. She can, however, read the lips with considerable facility by the aid of her fingers.

There are now many deaf-blind children under individual instruction in schools for the deaf and schools for the blind in the world. Last year the State of Pennsylvania made a special appropriation for the instruction of a deaf-blind girl at the Pennsylvania Institution in Philadelphia.

The Fifth Class, the slightly hard of hearing pupils in the regular public schools of the country, is much larger than is usually known, and almost entirely neglected. They are in no sense candidates for a special school for the deaf, and yet they are too deaf to work properly in classes of forty or fifty to a single teacher. They usually come gradually to be classed as, dull, stupid, backward children. Sometimes they are, but often they are of fully average, if not exceptional, ability. All that is needed to enable them to do the regular work of the graded school in

the ordinary way is to give them more individual attention in smaller classes. There should be provision for such a class in every large public school, and it should not exceed fifteen pupils. It has been found that among the 600,000 school children in New York City, one in each hundred has hearing sufficiently impaired to be severely handicapped under the ordinary conditions of the City's schools. In each of these schools there are usually from twelve hundred to two thousand pupils, so that a class of from twelve to twenty would be provided in each school building. Great care should be taken that no stigma is attached to such a class. The arrangement should be such that they would not be looked upon as feeble-minded, or defective, otherwise much difficulty would be experienced in carrying out the plan successfully. They should do exactly the same work in the same time as is done in the other larger classes.

Physicians desiring detailed information on any point touching the welfare of the deaf, aside from medical matters, can obtain it from the following sources: The "Volta Bureau for the Increase and Diffusion of Knowledge Relative to the Deaf," and "The American Association to Promote the Teaching of Speech to the Deaf," both of Washington, D. C., both established by Dr. Alexander Graham Bell, the distinguished inventor of the telephone. The "American Annals of the Deaf," Kendall Green, Washington, D. C. Prof. John Dutton Wright, editor of the special department for the Deaf in "THE LARYNGOSCOPE," St. Louis, Mo. Dr. John L. Adams, 38 East Fifty-first Street, New York City, Chairman of a committee appointed by the Otological Section of the American Medical Association. Dr. E. B. Dench, 15 East Fifty-third Street, New York City, Chairman of a committee appointed by the American Otological Society and the American Laryngological, Rhinological and Otological Society.

A list of schools in the United States and Canada will be found in "THE LARYNGOSCOPE," St. Louis, Mo., for December, 1910, and in the "American Annals of the Deaf," Washington, D. C., January, 1911, and in the "Volta Review," Washington, D. C., May, 1911.

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**Neuralgia of the Larynx.** H. KAHN, *Jour. of Ophthal. and Oto-Laryngol.*, May, 1911.

Laryngeal neuralgia of the non-ulcerative type is characterized by more or less intermittent pain, painful areas, dyspnea, dysphagia, disinclination to talk and fear of approaching death.

The disease has a separate entity and should not be confused with painful affections of the larynx due to ulcerative causes.

Six cases are cited showing its predominance in the female. The ages ranged between 21 and 46 years. The pain may be on one or both sides, and is usually so severe as to limit speaking, swallowing and deep breathing. The "points dolorosa" are found along the upper laryngeal border.

STEIN.

## BOOK REVIEWS.

**Hand-book of the Special Surgery of the Ear and Upper Respiratory Tract. (Handbuch der speciellen Chirurgie des Ohres und der Oberen Luftwege.)**

Edited by Drs. L. KATZ, H. PREYSING and F. BLUMENFELD. Band 1, Lieferung 1-2, price, Mk. 8; Band 1, Lieferung 3, price, Mk. 6; Band 1, Lieferung 4-5, price, Mk. 9. Wuerzburg, Curt Kabitzsch (A. Stuber's Verlag), 1911.

This treatise has for its special object the presentation of the surgery of the ear and of the upper respiratory tract in practical, classic and most exhaustive form. The unusual progress which has been made in these specialties in the past few decades has carried with it an extensive development and evolution in special surgical technic. Provision has been made for the most detailed presentation of every section of this elaborate work and the authors have been selected from among the best-known men in the scientific world; men whose original work in these various departments have qualified them in the production of these comprehensive monographs. These monographs have been reduced to a practical possibility and the entire operative technic and topographical anatomy are presented in the minutest detail.

Carefully prepared chapters of every step in this operative technic and surgery of the head will be taken up in each monograph.

This extensive hand-book is under the editorial supervision of Dr. L. Katz, Dr. H. Preysing and Dr. F. Blumenfeld, and the many years of experience of these well-known editorial workers bespeak the complete success of this undertaking.

The two first hand-books of this monograph have already been issued in three numbers. 1. The topographical anatomy of the head, exclusive of the nasal cavities and of the ear; 2. The topographical anatomy of the nasal cavities and of the accessory sinuses.

It is impossible in a review of this character to do full justice to these two classics in surgical anatomy by such masters as Sobotta and Onodi. The surgical anatomy of the head has come into most unusual prominence in the last decade, especially because of the rapid development in the surgery of the accessory sinuses, because of a clearer understanding of their pathology, of the relation of the orbit to the nasal cavities, of the extension of the suppurative processes from the nasal fossae to the cranium, of the introduction of the X-ray and on account of the many other evolutions and evidences of progress which make a closer study of the surgical and anatomical land-marks of these cavities an absolute necessity.

Not only is the text exhaustive to cover this important field, but the series of illustrations in half-tones and the colored plates may be regarded as perhaps the best yet produced. To add to the usefulness of the plates the nomenclature is presented clearly and minutely.

We propose to keep our readers advised of every issue as promptly as it appears. To every special worker in oto-laryngology this hand-book of the special surgery of the ear and of the upper respiratory tract is indispensable and even though the text is in German, the subject-matter is easily comprehended by the English reader. The work is to be complete in four volumes. If the entire series is not desired it is possible to purchase volumes 1 and 2, volumes 1 and 3, or volumes 1 and 4.

## SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON LARYNGOLOGY AND RHINOLOGY.

*Regular Meeting, December 28, 1910.*

LEE M. HURD, M. D., CHAIRMAN.

**Incipient Recurrent Paralysis of the Right Vocal Cord.** By T. J. HARRIS, M. D.

Cases of recurrent paralysis of the vocal cord are not sufficiently common to pass them over without a word of comment. The involvement in consequence of the early stage is not noticeable in phonation. It involves the right vocal cord and is very noticeable on deep breathing. The patient has the characteristically good voice of one whose cord is attacked as his is. There are no symptoms in the larynx except a slight pain or sticking sensation which he refers directly to the right vocal cord. The patient shows upon the upper portion of his chest a distinct protuberance, suggesting an aneurysmal growth, but there are no symptoms to confirm that.

Broeckaert, in the *Journal of Laryngology* for March, 1911, says that there are now several exceptions to Semon's law that the abductor fibers are first attacked. There are a number of cases where the abductor fibers are first attacked, and it is not true that the cords in the first stage are always in the median line. Broeckaert states that the cords are wont to be slightly *out of* the median line. The true cause of the trouble in this case is not thoroughly determined, but it would seem to be pressure, and from some mass of glands. Broeckaert, in all the cases that he has been able to examine, postmortem, found the recurrent embedded in thoracic glands.

The patient is under iodide, and has no trouble except the slight pain in the right side of his throat.

**Syphilitic Tuberculosis of the Nose Treated by 606.** By T. J. HARRIS, M. D.

This patient was presented before the section two months ago and those who were present at that time will recall the case—mixed syphilis and tuberculosis. The question of the wisdom of treating him with the new drug, 606, for the condition of his nose was then discussed. There was present a syphilitic necrosis of the nose, with a pronounced swelling on the right side and a slight swelling on the

left side. Dr. Harris said that at the last meeting he had reported that the patient had been injected with the usual dose, and gave only a small amount of reaction. Those who saw the case at the November meeting had the opportunity of deciding in their own minds whether or not there had been any improvement. He himself felt that there was distinct improvement at that time and had brought the patient to-night in order that the members might see the condition of the nose after two months. The patient's general condition is improved, and he seems to be gaining in weight, and has more freedom in breathing; generally, he seems to be in pretty good shape, but locally the condition is worse; the swelling on the left side had markedly advanced. It is now a question of further injection or operation.

#### DISCUSSION.

DR. HAYS said that about a year ago, he had seen a very interesting case of paralysis of the left recurrent laryngeal nerve. The patient, a woman of about 35, came to him complaining of dyspnea and weakness of the voice. On first examination, there seemed to be slight paresis of the cord and a peculiar laxity of the mucosa over the left arytenoid which looked very much like a tumor of some kind. A second examination showed a cadaveric position of the cord, the mucosa of the arytenoid being lax on account of the position of the cord. A careful examination seemed to indicate that the dyspnea was thoracic. He called Dr. Adler in consultation, who after a most thorough examination, including fluoroscopy, found nothing which could account for the patient's symptoms. Dr. Adler seemed to think that there was a tumor of the arytenoid. In order to better satisfy himself, Dr. McCoy saw the case with him, pronouncing it one of recurrent laryngeal paralysis. Dr. Hays treated her with injections of strychnine, gr. 1-60, through the thyro-hyoid ligament, applications of silver nitrate, sprays, etc. The patient seemed to improve considerably under this treatment, but he believes the effect was more psychic than anything else. On her return to the West, the dyspnea recurred. Dr. Hays said he believed that the recurrent paralysis was due to pressure on the nerves by some deep cervical glands on this side, the patient having stated that she was quite tender on pressure just above the clavicle.

DR. THURBER inquired whether the patient had tuberculosis, remarking that as he sat in the chair his pulse was 120, he had clubbed finger tips and looked emaciated. Dr. Harris replied that no examination for tuberculosis had been made.

Dr. Thurber then told of a patient suffering with unilateral recurrent paralysis, but with more loss of voice than this case pre-

sented, who found he could restore his voice to a loud, booming character by pressure on the affected side of the larynx with his finger; thus giving the affected cord a pressure adduction.

DR. THURBER inquired whether one strip of bone had been used or had the portion of rib been split and made to form a new bridge by straddling the nasal bones.

DR. HARRIS thanked Dr. Thurber for the suggestion, and said that he would push the question of diagnosis further and would report on the case at another meeting.

Referring to the patient with the syphilitic condition of the nose, he said that before the injection of 606 there was a distinct swelling over the left nasal bone and a good deal of deformity, and those who examined the nose carefully detected a pulsation. The larger question at present is the matter of further procedure—the question of going in, or another injection. We do not know the value of another injection. Ehrlich states that in a few cases it is necessary to give a second injection. There was certainly some improvement in the patient after the first injection, and this improvement continued for a month.

DR. JOHNSON inquired how long the patient had been treated before the last meeting. Dr. Harris replied that the patient was first presented two months ago, shortly before the injection. Dr. Johnson replied that he had not seen the patient at the last meeting, but had seen him when first presented and the diagnosis then was tuberculosis and syphilis. Might it not be possible that there was a third trouble present—that the new growth on the left side was an angioma. There is a form of angioma which is somewhat rapid in its growth, and very frequently it is of a serious and dangerous character. It may be that this patient has syphilis, tuberculosis, and this new growth also. There was no doubt but that the man had improved in appearance, general condition, and ability to breathe through the nose. At the October meeting the right nostril was almost plugged up, he breathed through the mouth, and his general appearance was dejected and miserable. To-night he looked pretty comfortable. The injection of 606 seems to have done him good rather than harm, and it would seem worth while to give him another dose before undertaking operation on the tumor.

Dr. Johnson said that there was some question of the softness of that portion of the nose as an indication of dead bone. It is probable that there might be a certain amount of dead bone, although Dr. Harris found no pus on incision. It was found on probing that the bone was rough and denuded of its pereosteum. But he had not been observing the case daily as had Dr. Coffin and Dr. Harris. He still,

however, feels very positive in his opinion—having looked at the man very carefully before and again this evening—that the patient is in a very decidedly better condition both as regards his nose and otherwise, regardless of the increase in the swelling on the left side of the nose, and still feels convinced that it was soft on the right side of the nose when first presented, and before the injection of the 606.

DR. ABRAHAM inquired whether the Wassermann test had been made lately, and Dr. Harris replied that it had not been made since the 606 was given.

Dr. Abraham said that Ehrlich seems to prefer the intravenous injection of 606 in preference to the intramuscular method. He agreed with Dr. Coffin that if dead bone is present it ought to be removed. That was found by the probe, and it would not be absorbed. Nevertheless, he was in favor of giving another dose of 606 following operation, to see whether it would not heal more rapidly than without it. He was inclined to think that the intravenous administration of the 606 was the preferable method.

DR. HARRIS said that he would like to speak a single word in closing the discussion. Dr. Johnson is right, and yet not right; on the right side there was no distinct fluctuation, but there was fluctuation on the left side, though less than to-night. He opened the swelling because he thought there was pus there, but found nothing but blood. There is pronounced necrosis, and the condition is only an aggravation of what is was before the 606 was given. There is no question but that the right side of the nose is better.

#### **Post-operative Double Frontal Sinusitis with Interesting and Unusual Complication.** By C. D. VAN WAGENEN, M. D.

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##### **DISCUSSION.**

DR. VAN WAGENEN said that he had hoped to hear more discussion of the subject. Dr. Coffin was the only one who had had opportunity of examining the patient. He himself had not explored further into the case after the hemorrhage, for it was impossible to get a clear field. The hemorrhage was both a large stream and an oozing one at the same time, and the only way to stop it was to plug the whole field with a heavy tampon, and keep it there. Because of this hemorrhage there was no attempt made to go into the ethmoid regions. Everywhere he passed his finger or probed under the area there was rough hard bone. He intended to keep the case under close observation, and if anything else should develop in the future he would report it.

DR. HARRIS said that he did not understand what Dr. Van Wagenen had said about the dense hard bone and also the lipoma. Everything seemed to point to what Dr. Coffin had mentioned—on osteoma. He hoped that Dr. Van Wagenen would carry his work a little further in reference to the other sinuses; the other antra should be explored thoroughly. There is a possibility that there is an empyema of the sphenoid. In his experience such bleeding as Dr. Van Wagenen had spoken of is not infrequent, and is only controlled by packing.

DR. VAN WAGENEN said that the word lipoma, which he had used, referred to the fatty lobules which he discovered and which were apparently resting on the dense hard bone. They were distinct fatty lobules, resting on the rough hard bone. He had introduced his finger and swept it underneath, and the lipomatous tissue protruded right away but up above this tissue there was dense hard bone.

#### **Transplantation of Rib for the Correction of Depressed Deformity of the Nose.** By W. W. CARTER, M. D.

*Published in full in the March, 1911 issue of THE LARYNGOSCOPE.*

#### **DISCUSSION.**

DR. HARMON SMITH said that he was familiar with the cases presented, but more particularly with the last, as he was present at the operation. The first case could, in his opinion, have been corrected by the injection of paraffin, which was by far a simpler procedure. The second could have been overcome by Dr. Carter's bridge splint operation, but the third was one where no support at all was present and bands of fibrous tissue bound the dorsum of the nose to the bones so that nothing short of a solid support from the frontal bone to the nasal tip would have been sufficient to correct the deformity. These three cases present the three varieties of deformity which can be met by the procedures as stated: small, regular deformity with bony support can be readily overcome by paraffin; a deep deformity, irregular in outline and with some support, can be overcome by the bridge splint; and an irregular deep deformity with adhesions and scar tissue running transversely across the dorsum can be overcome by the introduction of a rib support.

It appears that the operation is unnecessarily complicated by removing a section of a rib, when only the outer hard part is used for the support, and if sufficiently sharp instruments are used it appears feasible to remove only that which is necessary to supply the demand.

All other substitutes for the support of the nose have finally worked out and the nose has resumed its former shape. Celluloid,

silver, bone, hard rubber, etc., have been used in the nose but in time have been expelled; so that the rib—if it proves to be of lasting support—will offer us a most valuable aid in the correction of deformities which are otherwise beyond our surgical aid.

Until several years elapse, however, we shall have no definite idea of the efficiency of the rib over these other materials; as they have been known to remain in situ for three years.

DR. THURBER said that he would like to know if one strip of bone had been used.

DR. JOHNSTON asked how Dr. Carter splits the bone and cleans out the medullary portion.

DR. CARTER in closing the discussion, said that Dr. Smith had suggested removing only half of the thickness of the rib. It was true that only a small portion of the rib was used, but it had been shown that as a rule it is not a good plan to leave cancellous tissue exposed in the body if it is possible to avoid it, for it is liable to cause disturbance. It would be more difficult to remove a small portion of the rib than to remove the entire thickness. If one has the proper instrument the full thickness of the rib can be removed with ease; its removal is perfectly safe, the pleural cavity is not entered at all, and the rib is promptly reconstructed. You cannot tell that a piece was ever taken from the first patients operated upon.

In regard to the use of paraffin, not every one is able to use that with as much success as Dr. Smith. He himself does not attempt to do paraffin work, but he has seen some of Dr. Smith's cases and they are as perfect as could be expected, but in cases of the kind he had reported paraffin is not suitable, for while it is not a fluid when cold it is fluid when injected, and as such must be subject to the law of physics that a fluid under pressure exerts an equal force in every direction. The force would be exerted sidewise, backward and forward, and in every direction; furthermore, after the injection it ceases to exert a force that would overcome the deformity, whereas a piece of bone inserted in this way acts like a rafter, and keeps a constant tension upon the tissues, pulling them into position. In this case, as can be seen, the nose is spread out over the face. This tissue in every part of his body; therefore it is already organized. soft tissue, and when this rafter was put in it exerted constant traction and the soft tissue was pulled up into position. In such a case paraffin would not exert the pressure required and would be worse than useless.

As to the question whether or not the bone would become organized—it is already organized. It is a part of the man's body; it

is not the introduction of a foreign body, but merely the transplantation of a part of the body into another part; the molecular constitution of the tissue is the same as the molecular constitution of the tissue in every part of his body, therefore it is already organized. This matter of the transplanting of tissue can be compared to the transfusion of blood. If blood is transfused into the veins of another it causes the crenation of the corpuscles of the blood of the recipient, unless the donor is a very close blood-relation. For that reason, in the great majority of cases, the transfusion of blood is not practicable.

Replying to Dr. Coffin: if the bone were taken from another person, it would be re-absorbed for the reason that the molecular constitution and the chemical constitution of the two persons was different, and nature would right itself by absorbing the tissue. Dr. Coffin had spoken of Dr. Green's method. Dr. Green had visited Dr. Smith's clinic some six weeks previously, and Dr. Smith had introduced them. Dr. Green's operation differed from his own in that the former used cartilage from the rib with the perichondrium, and inserted it through an incision made up in the nose, and pushed it up to correct the deformity, but it does not rest on any portion of the skull or anything that could give it a prop. It was merely used to fill in the deficiency and the cartilage in his case did not slough out; but it did not give a perfect result. Dr. Green had not repeated the operation.

In reply to Dr. Thurber, who had asked about the shape of the bone used, Dr. Carter said that he had simply put in a little flat piece of the compact bone, probably three-eighths of an inch in width, and about two inches long; the medullary portion of the rib was thoroughly scraped off to the hard bone; its action was intended to be that of a rafter, or a lever of the first class, with the work done at this end.

In reply to a query from Dr. Johnson as to how the rib was split, Dr. Carter said that he had done that by taking the edge of the rib in the costotome and splitting it wide open into two pieces, he had used the outer portion, so as to get a little of the curve of the rib.

#### The Preparation of Thrombo-kinase. By L. W. STRONG, M. D.

*Published in full in THE LARYNGOSCOPE, February, 1911.*

#### DISCUSSION.

DR. SMITH said that he had had occasion to use this preparation only once before the last meeting, but since that time had used it in two cases of tonsillar removal, just as a test, and it seemed to con-

trol the hemorrhage very efficiently; he thought that if it had been a dangerous flow it might, however, have been washed away. He has also used it in the removal of small granulations around the entrance to the antrum, and in the ethmoid region, in curetting subsequent to the original operation, and it seemed to control the hemorrhage very well. In the removal of a spur it controlled the hemorrhage, and no packing was needed. There seems to be very little, if any, danger of secondary hemorrhage following its use, as it is a ferment and causes coagulation in the blood and not by contraction of the vessel wall. If it were possible to obtain an alkaloid from it—such as adrenalin from supra-renal, and it could be used as a solution instead of a powder—it would be still more valuable.

DR. VAN WAGENEN said that he had used the preparation after an adenectomy in an adult. Possibly his method was very crude. He had used the contents of a test tube and put it in the chamber of W. T. Co. powder blower, and after the adenectomy he introduced the curved tube of the blower and squeezed the bulb; the preparation checked the bleeding promptly. The next day he examined his powder blower, and found that the back suction had sucked some blood into the tube and it was clotted solid, and he had great difficulty in clearing the lumen of the tube. Two days later he looked at the patient. If he had not been positive that he had removed the adenoid, he would have thought that he had made a complete failure, for there was a large mass that resembled adenoid tissue at first glance. But in reality he had forced too much of the preparation into the posterior nares and it had formed an enormous clot which took ten or twelve days to be absorbed.

DR. HURD said that he had tried it on the tonsils in a case of mild hemorrhage, and it checked the bleeding promptly. The previous week he had removed a turbinate, and packed it with bismuth gauze, but it did not hold the hemorrhage; then he packed it with plain gauze, sprinkled with thrombo-kinase, and it stopped. He attributed this to the thrombo-kinase.

DR. SIMPSON inquired whether Dr. Strong thought the preparation would have any effect on a subsequent hemorrhage if used in a case of hemophilia.

DR. STRONG, closing the discussion, said that he could not expect the preparation to have any permanent effect upon a case of hemophilia. It is local in its effect.

In regard to Dr. Van Wagenen's case, he could say nothing. He had not heard of any other such case, nor of any objections being

made to it on account of its overclotting. It would require only a few crystals to produce the desired effect. He hoped to be able to modify the method a little further, to produce a more concentrated body, by means of acetone precipitation.

DR. ABRAHAM inquired whether there was any contra-indication to make it a powder rather than a crystal, to which Dr. Strong replied that it was pounded up in a mortar, and will not dissolve.

**X-Ray Demonstration of Normal Frontal Sinuses.** By W. H. STEWART, M. D.

DISCUSSION.

DR. CALDWELL said that he was very glad to have had the opportunity of seeing the beautiful collection of plates which Dr. Stewart had presented. He had never seen such a collection of plates of patients of different ages. He himself has rarely had occasion to make plates of children. He recently saw a child eight years of age who showed an adult type of frontal sinus. The reported frequency of absence of the frontal sinus on one side astonished him very much. The percentage of the absence of the sinus in his cases is very much smaller. That may be because persons with the absence of frontal sinus are less likely to be the subjects of disease of the other accessory nasal sinuses, and in consequence, not so likely to be submitted to X-ray examination.

In his case it was impossible to get a good clear plate because of the peculiarities of the skull of the patient. There was a little shading above the sphenoidal fissure, which might be explained by a local thickening of bone due to a periostitis. He felt unable from the hasty examination of the plates to make a definite statement.

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January 25, 1911.

**Rhino-scleroma.** By HARMON SMITH, M. D.

*Case 1.* F. G., male, 20 years old, born in Russian Poland, and has resided in the United States for four years. Both family and past history are negative. He was admitted to my clinic at the Manhattan Eye, Ear and Throat Hospital, last December, with the following history: Three months previously, which would have been in August, last, he had a severe hemorrhage from the right nostril. Three days later this recurred, and he noticed a small "sore" at the entrance to the nasal cavity, upon the floor and upon the septum. This sore extended until the whole of the right ala was

involved, and presented an ulcerating bleeding surface, surrounded by small, pea-sized nodules. Bleeding occurred upon slight disturbance of the parts. Upon examination internally, a large perforation of the cartilaginous portion of the septum was observable. A Wassermann's reaction was taken and proved negative. Examination of the blood showed the supposedly specific bacillus of scleroma and, in addition, some unique histological and pathological conditions which are best described in Dr. Jonathan Wright's own words. (Twenty exposures of the X-ray have been given with considerable manifest improvement externally).

*Pathological Report:*

F. G. "In reporting this case as one of rhinoscleroma from a pathological standpoint, it is scarcely necessary to give a detailed and technical description of the various findings in the laboratory on which that opinion is based, since such reports have been, in the last few years, repeatedly made from the laboratory of the Manhattan Eye, Ear and Throat Hospital on tissue removed from the lesions of a number of cases seen in the clinics. Suffice it to say that histologically all the characteristics going to make up a diagnosis of rhino-scleroma are present, except, perhaps, the tintorial evidence of the presence in the tissue of the bacillus of Frisch, it however having been repeatedly cultivated from the blood drawn directly from the lesion. The foam cells, the hyaloid or Russel bodies, the eosinophil cells, are all to be observed in the most striking way. As some investigations have been going on in the laboratory on the existence of fat and the lipoids in other tissues, sections from this case were put through the technic for the detection of these bodies, including neutral fat, soap, and fatty acids, cholesterol, and lecithin. The results of such work on this and other cases will be more fully described elsewhere.

In contra-distinction to the degenerated or coagulated necrotic areas in syphilis and tuberculosis, the crumbling cytoplasm of the foam cells seemed to furnish only a moderate amount of material taking the various stains for neutral fat and showing the tintorial reactions for cholesterol and for lecithin. They were all present but not in an abundance which very decidedly exceeded that of the tonsils, for instance, while the neutral fat was much less in evidence than is usual in tubercle or gumma.

The striking feature of this study was the richness of the diseased areas, both in and out of the plasma cells, in soap, probably in the form of an oleate of cholesterol.

*Case 2.* This patient, S. G., male, is 18 years old. Born in Russia. Family history, so far as is obtainable, reveals a similar condition in both his grandmother and his father. He also claims that a brother has a somewhat similar condition in his nose, throat and ear. The patient came into my clinic six months ago, complaining of difficult breathing and sore throat. Six years ago he had a severe pain in his nose, which became continuous and more

painful. He was operated upon twice in Newark for both nasal and throat conditions, the nature of which is not obtainable. Pain has been continuous for one month. Examination revealed completely occluded nasal fossae, and a nodular appearance of the external tissues. Wassermann's test was negative. Microscopical examination of blood and tissue showed scleroma. He has had four injections of vaccine, and is now getting it twice a week. Has also had twenty-four exposures of the X-ray. Pain has ceased and there seems to be a moderate improvement.

As Lamar and Flexner have recently shown (*Journal of Experimental Medicine*, January 5, 1911), that this superabundance is probably one of the chemical steps in the resistance of the tissues to the bacterial infection in pneumonia by the pneumococcus, and that it appears in abundance in the cytolytic stage of resolution, it is interesting here to note in a lesion of crumbling protoplasm its predominance over other forms of fat and over liquids, in areas of disease associated with the presence of the Frisch bacillus. This, too, occurred in a case which was offering more than the usual resistance to the progress of a relentless affection.

Dr. Strong, in this case, has done considerable work on the bacteriological aspects of it in connection with other cases, and he has repeatedly isolated a bacillus which has differed somewhat from those isolated from other cases, in being a gas producer on certain media and in deviating complement in hemolysis in a more feeble manner than the others. It is possible that this case will be the starting point in a more careful differentiation of the bacilli associated with such cases, hitherto considered of great rarity in this country. The existence of quantities of soap in the lesion may also prove no less significant.

Dr. Smith said that the fact that these cases are infectious, and that this country is receiving so many persons from the sections where it is endemic should induce us to take some steps to limit its advance in our midst.

#### DISCUSSION.

DR. EMIL MAYER said that he was especially interested in the subject of rhino-scleroma. The scleromatous tissue generally seen is enmeshed in normal tissue, covered by a soft mass, looking like adenoid tissue, but never as an independent or tumor-like growth. The first case shown by Dr. Smith is practically well; the other exhibits the kind of tissue usually found in rhino-scleroma and is readily recognizable. A month previously a young woman had presented herself at the speaker's clinic at Mount Sinai Hospital with

a large mass completely filling one side of the nose, which yielded to pressure sufficiently to lead to the belief that it was polypous tissue. His assistant removed the growth, which consisted of several large pieces which the speaker at once felt were not polypi; the specimen was sent to the laboratory, and the pathologist reported that it was rhino-scleroma. The remainder of the growth was removed subsequently, and the specimen now presented. This second mass was also examined and reported to be rhino-scleroma. There seems to be an infinite variety of manifestations of this condition, and it appears where least expected, though thus far it seems to be limited to Poles, Russians or Prussians, or persons coming from near that section of the country. The question of contagion had been brought up before, and at the last International Congress, a committee was appointed to study the question, to suggest what could be done by government to prevent possible contagion. It would seem to be a difficult thing for the United States Government to take action on the cases we have seen. In one of the cases presented by Dr. Smith, the patient has been in this country for four years and in the other for two years. One of them evidently had rhino-scleroma when he came, although no diagnosis had been made; the other came to this country apparently well. The young woman mentioned by the speaker came from Russia (not Poland) and has been in this country four years.

DR. FREUDENTHAL said that in the last year he has seen two cases, one of the patients being an Italian laborer whom he saw with Dr. Brown, the other a woman who came to his clinic. The latter had the typical signs of rhino-scleroma,—not the soft gelatinous mass, but hard and thick masses. She had a child with her, and was referred to Dr. Jonathan Wright for examination. He was very glad to get the cases, and to have the blood of the mother and the child examined, but patient refused to have it done.

Dr. Freudenthal then inquired how Dr. Smith had applied the X-rays, whether in the ordinary manner or from a small tube. The man came from a part of Poland very near the German frontier—the Prussian side. Prof. Gerber, of Koenigsberg, states that there is a great increase of such cases that come from Poland into Germany. It would be very difficult to keep such persons out of this country, for in very few cases can the diagnosis be made clinically.

DR. SMITH said that he understood that the X-ray instructor at the hospital had applied the rays through a lead plate with a speculum.

(*To be continued*).

